

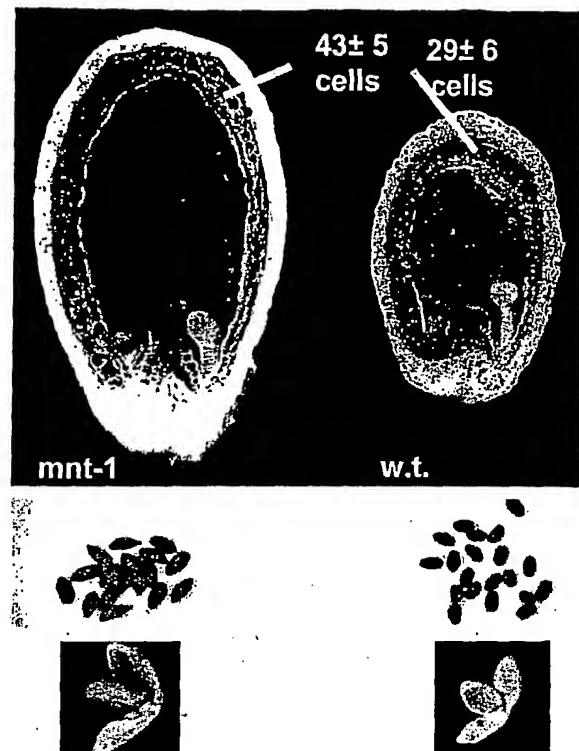
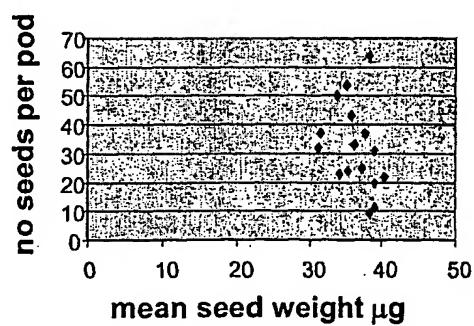
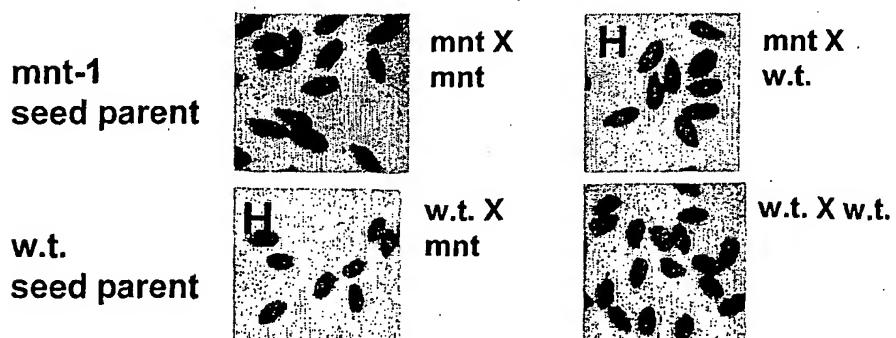
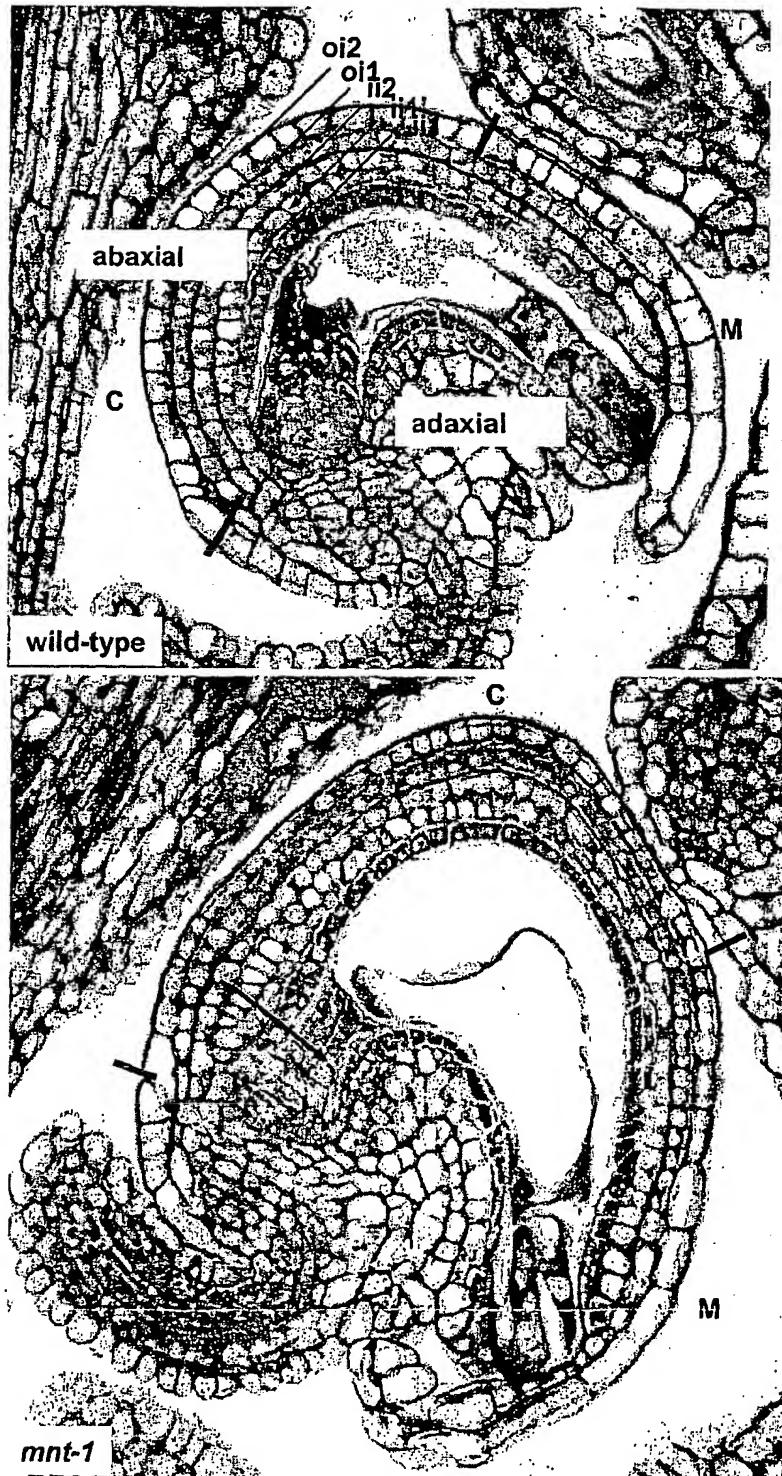
Figure 1**1A mnt-1 vs wild-type seeds****1B Seed weight vs no. seeds per pod in *mnt-1*****1C Maternal effect of *mnt-1* mutation**

Figure 2

2A Mature w.t. and *mnt-1* ovules



2B Cell number and size in w.t. and *mnt-1* integuments

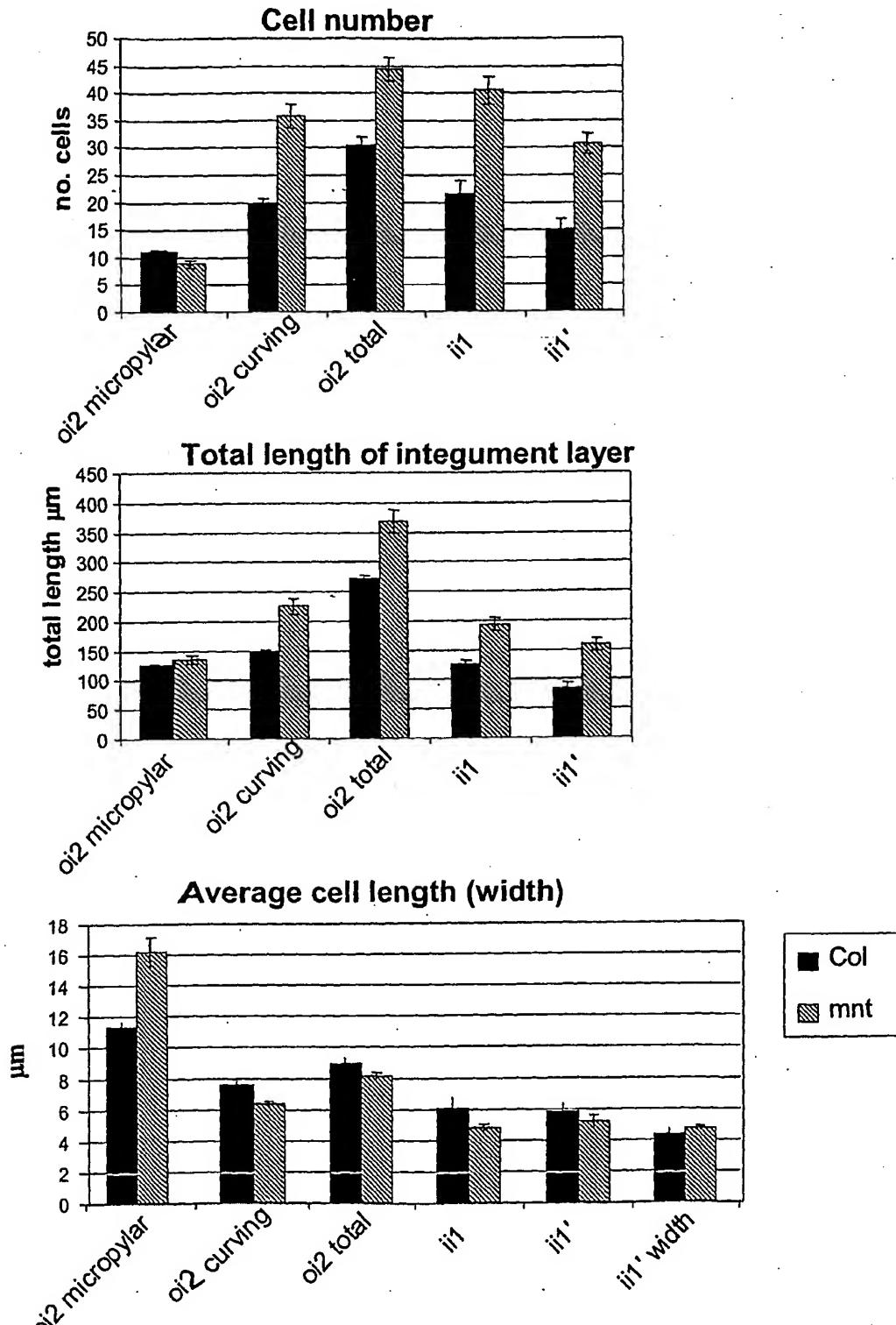


Figure 3

Chalazal endosperm



w.t. 7DAP



mnt-1 7DAP

Bars = 50 μ m

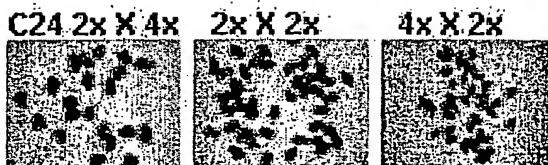
2x X 6x 5 DAP

Figure 4

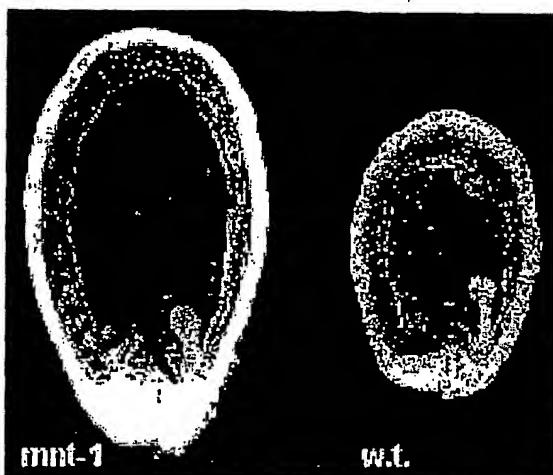
4A Endosperm-led growth



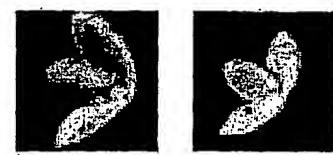
big cavity normal small



4B Integument-led growth



big cavity normal



4C 'Big bag' hypothesis: seed and embryo size set by size of the seed cavity

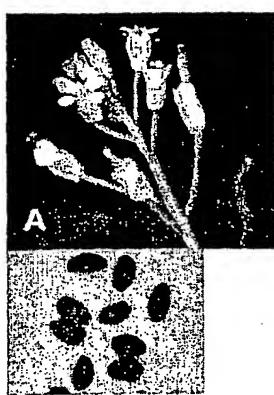
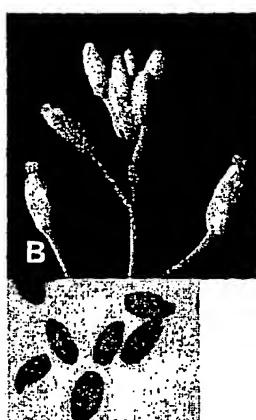
1. Division in endosperm
(maternal and paternal control)
2. Division in integuments/
seed coat (maternal control)



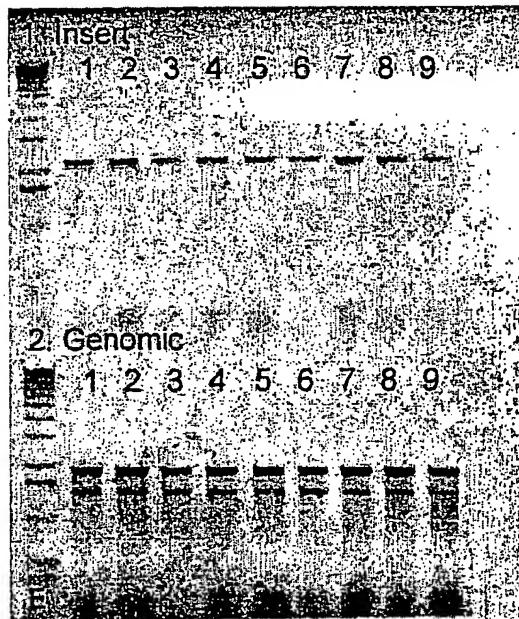
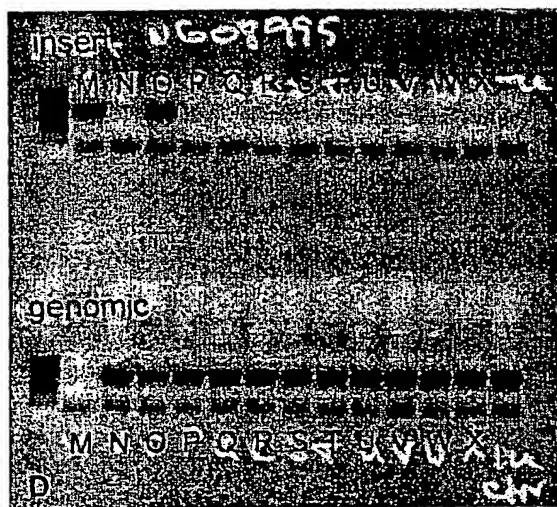
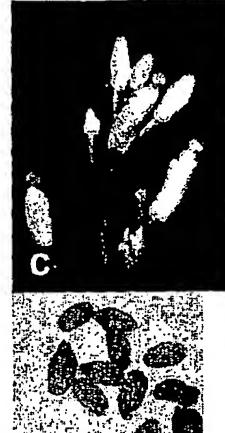
Figure 5

Allelism of *mnt-1* and Salk insertion line 108995

Col-3 w.t.

*mnt-1*

Salk 108995 homozygote

F1 *mnt-1* X Salk 108995

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Figure 6

Alignment of w.t. MNT and mutant mnt-1 cDNA

MNT	*	20	*	40	*	60
ATGGCGAGTCGGAGGTTCAATGAAAGGTAACTCGTGGAGGAGATAACTTCTCCTCCTCT						
ATGGCGAGTCGGAGGTTCAATGAAAGGTAACTCGTGGAGGAGATAACTTCTCCTCCTCT						
mnt-1	*	80	*	100	*	120
GGTTTTAGTGACCCCTAAGGAGACTAGAAATGTCTCCGTCGCCGGCGAGGGGCAAAAAGT						
GGTTTTAGTGACCCCTAAGGAGACTAGAAATGTCTCCGTCGCCGGCGAGGGGCAAAAAGT						
	*	140	*	160	*	180
AATTCTACCCGATCCGCTGCGGCTGAGCGTGCTTGGACCTGAGGCTGCTTTACAGA						
AATTCTACCCGATCCGCTGCGGCTGAGCGTGCTTGGACCTGAGGCTGCTTTACAGA						
	*	200	*	220	*	240
GAGCTATGGCACGCTTGTGCTGGTCCGCTTGTGACGGTTCTAGACAAGACGACCGAGTC						
GAGCTATGGCACGCTTGTGCTGGTCCGCTTGTGACGGTTCTAGACAAGACGACCGAGTC						
	*	260	*	280	*	300
TTCTATTTCTCAAGGACACATCGAGCAGGTGGAGGCTTCGACGAACCAGGCGGCAGAA						
TTCTATTTCTCAAGGACACATCGAGCAGGTGGAGGCTTCGACGAACCAGGCGGCAGAA						
	*	320	*	340	*	360
CAACAGATGCCTCTCTATGATCTTCCGTCAAAGCTTCTCTGTCGAGTTATTAAATGTAGAT						
CAACAGATGCCTCTCTATGATCTTCCGTCAAAGCTTCTCTGTCGAGTTATTAAATGTAGAT						
	*	380	*	400	*	420
TTAAAGCGAGAGGAGATAACAGATGAAGTTATGCGCAGATTACTCTTCTTCTGAGGCT						
TTAAAG----AGGCAGATAACAGATGAAGTTATGCGCAGATTACTCTTCTTCTGAGGCT						
	*	440	*	460	*	480
AATCAAGACGAGAATGCAATTGAGAAAGAAGCGCCTCTTCTCCACCTCCGAGGTTCCAG						
AATCAAGACGAGAATGCAATTGAGAAAGAAGCGCCTCTTCTCCACCTCCGAGGTTCCAG						
	*	500	*	520	*	540
GTGCATTCGTTCTGCAAAACCTTGACTGCATCCGACACAAGTACACATGGTGGATTTCT						
GTGCATTCGTTCTGCAAAACCTTGACTGCATCCGACACAAGTACACATGGTGGATTTCT						

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* 560 * 580 * 600

GTTCTTAGGCGACATGCGGATGAATGTCCTCCACCTCTGGATATGTCACAGCCTCCC
GTTCTTAGGCGACATGCGGATGAATGTCCTCCACCTCTGGATATGTCACAGCCTCCC

* 620 * 640 * 660

ACTCAAGAGTTAGTTGCAAAGGATTTGCATGCAAATGAGTGGCGATTCAAGACATATATTCA
ACTCAAGAGTTAGTTGCAAAGGATTTGCATGCAAATGAGTGGCGATTCAAGACATATATTCA

* 680 * 700 * 720

CGGGGTCAACCACGGAGGCATTGCTACAGACTGGGTGGAGTGTGTTGTTAGCTCCAAA
CGGGGTCAACCACGGAGGCATTGCTACAGACTGGGTGGAGTGTGTTGTTAGCTCCAAA

* 740 * 760 * 780

AGGCTAGTTGCAGGCCATGCCTTATATTCTAACGGGCGAGAATGGAGAATTAAAGAGTT
AGGCTAGTTGCAGGCCATGCCTTATATTCTAACGGGCGAGAATGGAGAATTAAAGAGTT

* 800 * 820 * 840

GGTGTAAGGCGTGCATGCGACAACAAGGAAACGTGCCGTCTCTGTTATATCTAGCCAT
GGTGTAAGGCGTGCATGCGACAACAAGGAAACGTGCCGTCTCTGTTATATCTAGCCAT

* 860 * 880 * 900

AGCATGCATCTTGGACTACTGGCCACCGCATGGCATGCCATTCAACAGGGACTATGTTT
AGCATGCATCTTGGACTACTGGCCACCGCATGGCATGCCATTCAACAGGGACTATGTTT

* 920 * 940 * 960

ACAGTCTACTACAAACCCAGGACGAGCCCATCTGAGTTATTGTTCCGTCGATCAGTAT
ACAGTCTACTACAAACCCAGGACGAGCCCATCTGAGTTATTGTTCCGTCGATCAGTAT

* 980 * 1000 * 1020

ATGGAGTCTGTTAAGAATAACTACTCTATTGGCATGAGATTCAAAATGAGATTGAGGC
ATGGAGTCTGTTAAGAATAACTACTCTATTGGCATGAGATTCAAAATGAGATTGAGGC

* 1040 * 1060 * 1080

GAAGAGGGCTCCTGAGCAGAGGTTACTGGCACAACTGTTGGGATTGAAGAGTCTGATCCT
GAAGAGGGCTCCTGAGCAGAGGTTACTGGCACAACTGTTGGGATTGAAGAGTCTGATCCT

* 1100 * 1120 * 1140

ACTAGGTGCCAAATCAAAAGTGGAGATCCCTCAAGGTGAGATGGGATGAGACTTCTAGT
ACTAGGTGCCAAATCAAAAGTGGAGATCCCTCAAGGTGAGATGGGATGAGACTTCTAGT

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* 1160	* 1180	* 1200
<pre>ATTCCCTGACCTGATAGAGTATCTCCGTGGAAAGTAGAGGCCAGCTCTGCTCCTCCTGCT ATTCCCTGACCTGATAGAGTATCTCCGTGGAAAGTAGAGGCCAGCTCTGCTCCTCCTGCT</pre>		
* 1220	* 1240	* 1260
<pre>TTGAGTCCTGTTCCAATGCCTAGGCCTAAGAGGCCAGATCAAATATAGCACCTTCATCT TTGAGTCCTGTTCCAATGCCTAGGCCTAAGAGGCCAGATCAAATATAGCACCTTCATCT</pre>		
* 1280	* 1300	* 1320
<pre>CCTGACTCTCGATGCTTACCAAGAGAAGGTACAACTAAGGCAAACATGGACCCCTTACCA CCTGACTCTCGATGCTTACCAAGAGAAGGTACAACTAAGGCAAACATGGACCCCTTACCA</pre>		
* 1340	* 1360	* 1380
<pre>GCAAGCGGACTTCAAGGGTCTTGCAGGTCAAGAATACTCGACCTTGAGGACGAAACAT GCAAGCGGACTTCAAGGGTCTTGCAGGTCAAGAATACTCGACCTTGAGGACGAAACAT</pre>		
* 1400	* 1420	* 1440
<pre>ACTGAGAGTGTAGAGTGTGATGCTCCTGAGAATTCTGTTGTCGGCAATCTTCAGCGGAT ACTGAGAGTGTAGAGTGTGATGCTCCTGAGAATTCTGTTGTCGGCAATCTTCAGCGGAT</pre>		
* 1460	* 1480	* 1500
<pre>GATGATAAGGTTGACGTGGTTCGGGTTCTAGAAGATATGGATCTGAGAACTGGATGTCC GATGATAAGGTTGACGTGGTTCGGGTTCTAGAAGATATGGATCTGAGAACTGGATGTCC</pre>		
* 1520	* 1540	* 1560
<pre>TCAGCCAGGCATGAACCTACTTACACAGATTTGCTCTCCGGCTTGGACTAACATAGAT TCAGCCAGGCATGAACCTACTTACACAGATTTGCTCTCCGGCTTGGACTAACATAGAT</pre>		
* 1580	* 1600	* 1620
<pre>CCATCCCATGGTCAGCGGATACCTTTTATGACCATTCACTCACCTTCTATGCCTGCA CCATCCCATGGTCAGCGGATACCTTTTATGACCATTCACTCACCTTCTATGCCTGCA</pre>		
* 1640	* 1660	* 1680
<pre>AAGAGAAATCTTGAGTGATTCAAGAGGCAAGTCGATTATCTTGCTAACCACTGGCAGATG AAGAGAAATCTTGAGTGATTCAAGAGGCAAGTCGATTATCTTGCTAACCACTGGCAGATG</pre>		
* 1700	* 1720	* 1740
<pre>ATACACTCTGGTCTCCCTGAAGTTACATGAATCTCTAACCTGAGGTAACCTGCAGCAACTGAT ATACACTCTGGTCTCCCTGAAGTTACATGAATCTCTAACCTGAGGTAACCTGCAGCAACTGAT</pre>		

* 1760

* 1780

* 1800

CGGTCTCTCCAAGGGCGATGCAATGTTAAATACAGCGAATATCCTGTTCTTAATGGTCTA
 CGGTCTCTCCAAGGGCGATGCAATGTTAAATACAGCGAATATCCTGTTCTTAATGGTCTA

* 1820

* 1840

* 1860

TCGACTGAGAATGCTGGTGGTAACGGCCAATACGTCCACGTGCTTGAATTATTATGAG
 TCGACTGAGAATGCTGGTGGTAACGGCCAATACGTCCACGTGCTTGAATTATTATGAG

* 1880

* 1900

* 1920

GAAGTGGTCAATGCTCAAGCGCAAGCTCAGGCTAGGGAGCAAGTAACAAAACAACCCCTTC
 GAAGTGGTCAATGCTCAAGCGCAAGCTCAGGCTAGGGAGCAAGTAACAAAACAACCCCTTC

* 1940

* 1960

* 1980

ACGATACAAGAGGAGACAGCAAAGTCAAGAGAAGGGAACACTGCAGGCTCTTGGCATTCT
 ACGATACAAGAGGAGACAGCAAAGTCAAGAGAAGGGAACACTGCAGGCTCTTGGCATTCT

* 2000

* 2020

* 2040

CTGACCAACAAACATGAATGGGACAGACTCAACCATGTCTCAGAGAAACAACCTGAATGAT
 CTGACCAACAAACATGAATGGGACAGACTCAACCATGTCTCAGAGAAACAACCTGAATGAT

* 2060

* 2080

* 2100

GCTGGGGGCTTACACAGATAGCATCACCAAGGTTAGGACCTTCAGATCAGTCAAA
 GCTGGGGGCTTACACAGATAGCATCACCAAGGTTAGGACCTTCAGATCAGTCAAA

* 2120

* 2140

* 2160

GGGTCAAAATCAACAAACGATCATCGTGAACAGGGAGACCATTCCAGACTAATAATCCT
 GGGTCAAAATCAACAAACGATCATCGTGAACAGGGAGACCATTCCAGACTAATAATCCT

* 2180

* 2200

* 2220

CATCCGAAGGATGCTCAAACGAAAACGAACTCAAGTAGGAGTTGCACAAAGGTTCACAAAG
 CATCCGAAGGATGCTCAAACGAAAACGAACTCAAGTAGGAGTTGCACAAAGGTTCACAAAG

* 2240

* 2260

* 2280

CAGGGAAATTGCACTTGGCCGTCAGTGGATCTTCAAAGTCCAAAACCTATGAGGAGTTA
 CAGGGAAATTGCACTTGGCCGTCAGTGGATCTTCAAAGTCCAAAACCTATGAGGAGTTA

* 2300

* 2320

* 2340

GTCGCTGAGCTGGACAGGCTGTTGAGTTCAATGGAGACTGATGGCTCCTAAGAAAGAT
 GTCGCTGAGCTGGACAGGCTGTTGAGTTCAATGGAGACTGATGGCTCCTAAGAAAGAT

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* 2360 * 2380 * 2400

TGGTTGATAGTTACACAGATGAAGAGAATGATATGATGCTTGGTGGACGATCCTTGG
TGGTTGATAGTTACACAGATGAAGAGAATGATATGATGCTTGGTGGACGATCCTTGG

* 2420 * 2440 * 2460

CAGGAGTTTGGTGCATGGTCGCAAAATCTCATATACACGAAAGAGGAAGTGAGGAAG
CAGGAGTTTGGTGCATGGTCGCAAAATCTCATATACACGAAAGAGGAAGTGAGGAAG

* 2480 * 2500 * 2520

ATGAACCCGGGGACTTTAAGCTGTAGGAGCGAGGAGGAAGCAGTTGGGGAAAGGATCA
ATGAACCCGGGGACTTTAAGCTGTAGGAGCGAGGAAGCAGTTGGGGAAAGGATCA

* 2540 * 2560 * 2580

GATGCAAAGGACGCCAAGTCTGCATCAAATCCTCATTGTCCAGCGCTGGGAACCTTAA
GATGCAAAGGACGCCAAGTCTGCATCAAATCCTCATTGTCCAGCGCTGGGAACCTTAA

Figure 7**Alignment of w.t. MNT and mutant mnt-1 protein**

MNT	*	20	*	40	*	60	
MASSEVSMKGNGGGDNFSSSGFSDPKETRNVVAGEGQKSNSTRSAAAERALDPEAALYR							
MASSEVSMKGNGGGDNFSSSGFSDPKETRNVVAGEGQKSNSTRSAAAERALDPEAALYR							
mnt-1							
*	80	*	100	*	120		
ELWHACAGPLVTVPRQDDRVFYFPQGHIEQVEASTNQAAEQQMPLYDLPSKLLCRVINVD							
ELWHACAGPLVTVPRQDDRVFYFPQGHIEQVEASTNQAAEQQMPLYDLPSKLLCRVINVD							
*	140	*	160	*	180		
LKAEADTDEVYQITLIPENODENATEKEAPLPPEPPRFQVHSFCKTILTASDTSTHGGES							
LKRTQIOMKFMRELEFLIRLIKTRMQLRKKRLELHIGRSRCIRSRAKP-----							
*	200	*	220	*	240		
VIRRHADECILPPLDMSRQPPTOELVAKDLHANEWFRHTERGOPRRHILQSGWSVEVSSE							
*	260	*	280	*	300		
RIVAGDAEITIRGENGEIRVGVRAMRQGNVPSSVISSHSMHIGVILATAWHATISTGTME							
*	320	*	340	*	360		
TVVYKPRISPSEETVPPDQYMEVKNNYSTGMRFKMREEGEAPEOREFTGTIVGIEESDP							
*	380	*	400	*	420		
TRWPKSKWRSLKVRWDETSSIPRPDRVSPWKEPALAPPALSPVPMPPRKRPRSNIAPSS							
*	440	*	460	*	480		
PES SMLTREGTTKANMDPLPASGLSRVILQGQEYSTIRTKHTESVECDAPENSVWQSSAD							
*	500	*	520	*	540		
DDKVVDVSGSRRYGSENWMSSARHEPTYTDELSGFGTNIDPSHGORITYFYDHSSSPSMPA							
*	560	*	580	*	600		
KRILSDSEGKFDYLANQWOMIHSGLSLKLHESPKUPAATDASLOGRCNVKYSEYPVNLG							

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* 620 * 640 * 660

STENAGG NWP IRP RAL NYEE VVNAQ AQA QARE QVTKOPFTI QEETAKSREGNCRLEGIP

* 680 * 700 * 720

LTNNMNG TDSTM SQRNN LND AAGL TOIASPKVQDLSDQSKGSKSTNDHRE QGRPFQTNIP

* 740 * 760 * 780

HPK DACTKINS SRS CTKVHKOGIALGRSVDLSKFQNYEELVAELDRLFENGELMAPKGD

* 800 * 820 * 840

WILIVATDEENDMMI VGDDEWOFECGMVRKTELYTKEEVRKYNPGTISCRSEEEAVVGEGS

*

DAKDAKS ASNPSLSSAGNS

Figure 8

Alignment of MNT and BnARF2 cDNA

MNT * 20 * 40 * 60

ATGGCGAGTT CGGAGGTTCTATGAAAGGTAATCGTGGAA---GGAGATAACCTCTCCTCC
ATGGCGAGTT CGGAGGTTCTATGAAAGGTAATCGTGGAGGGAGGAGAAACCTCTCCTCC

BnARF2 * 80 * 100 * 120

TCTGGTTTTAGT GACCCCTAAGGAGACAGAAAGCTCTGGT CGCCGGCGAGGGGCAAA
GCTGGTTTTAGT GACCCCTAAGGAGACAGAAAGCTCTGGT CGCCGGCGAGGGGCAAA

* 140 * 160 * 180

AGTAATTCTACCCGATCGGCGGCGAGCGTGCTTGACCCCTGAGGCTGCTCTTAC
AGTCAGTCTAACCGATCTGTGGTGCAGAGCGCGGTGTGACCCCTGAGGCTGCTCTTAC

* 200 * 220 * 240

AGAGAGCTATGGCACGCTTGTGCTGGTCCCTGTGACGGTTCTAGACAAGAGACCGGA
CGAGAGCTATGGCACGCTTGTGCTGGTCCCTGTGACAGTCCTCGACAAGATGACCGGA

* 260 * 280 * 300

GTCTTCTATTTCTCAAGGACACATCGAGCAGGTGGAGGCTTCGACGAACCGAGCCGA
GTCTTCTATTTCTCAAGGACACATCGAGCAGGTGGAGCAGTCGACAATCAAGCTGCA

* 320 * 340 * 360

GAACACAGATGCCTCTCTATGATCTTCCGTCAAAGCTCTGTGGTGGTTATTAATGTA
GAACACAGATGCCTCTCTATGATCTTCCCTCAGGATCTTGTGCGTGTCAATTATGTT

* 380 * 400 * 420

GATTTAAAGGCAGAGGCAGAGACAGATGAAGTTATGCGCAGATTACTCTTCTTCCCTGAG
GATTTAAAGGCAGAGGCAGAGACCCGAGAAGTTATGCGCAGATTACTCTTCTTCCGGAG

* 440 * 460 * 480

GCTATCAAGACGAGAAATGCAATAGAGAAAGAGCGCCTCTTCCTCCACCTCCGAGGTTTC
CCTGTTCAAGACGAGAAATGCAATAGAGAAAGAGCGCCTCTTCCTCCGCCCCCAAGGGTTTC

* 500 * 520 * 540

CAGGTGCAATTGTTCTGCAAAACCTTGACTGCATCGACACAAGTACACATGGTGGATTT
CAGGTGCAATTGTTCTGCAAAACCTTGACTGCATCGACACAAGTACACATGGTGGATTT

* 560 * 580 * 600

TCTGTCTTAGGCGCATGGGATGAATGTCCTCCACCTCTGGATATGTCCTGACAGCCT
TCTGTCTTAGGCGCATGGGATGAATGTCCTCCACCTCTGGATATGTCCTGACAGCCT

* 620 * 640 * 660

CCCACTCAAGAGTTAGTTGCAAAAGATTGCAATGCAAAATGAGTGGCGATTCAACATATA
CCCACTCAAGAGTTAGTTGCAAAAGATTGCAATGCAAGGAGTGGCGTTTCCGACATATT

* 680 * 700 * 720

TTCCGGGTCAACCACGGAGGCATTTGCTACAGAGTGGGTGGAGCTGTTGTTAGCTCC
TTCCGGGTCAACCACGGAGGCATTTGCTACAGAGTGGATGGAGCTGTTGTTAGCTCC

* 740 * 760 * 780

AAAGGGCTAGTTGCAGGGCGATGCTTTATATTTCTAAGGGCGAGAATGGAGAATTAGA
AAAGGGCTGGTGCAGGGCGATGCTTTATATTTCTAAGGGCGAGAATGGAGAATTAGT

* 800 * 820 * 840

CTGGGTGTAAGGCGTGCATGGCGAACAAAGGAAAGTGCCGTCTCTGTTATATCAGC
CTGGGTGTAAGGCGTGCATGGCGAACAAAGGAAAGTGCCGTCTCTGTTATATCAGC

* 860 * 880 * 900

CATAGCATGCATCTGGAGTACTGGCCACCGCATGGCATGCCATTTCACAGGGACTATG
CACAGCATGCATCTGGAGTACTGGCCACCGCATGGCATGCCATTTCACAGGGACTATG

* 920 * 940 * 960

TTTACAGTCTACTAAACCCAGGACGAGCCATCTGAGTTATTGTTCCGTTGATCAG
TTTACAGTCTACTAAACCCAGGACTAGCCATCAAGGTTATTGTTCCGTTGATCAG

* 980 * 1000 * 1020

TATATGGAGTCTGTAAAGATAACTACTCTATGGCATGAGATTCAAAATGAGATTTGAA
TATACGGAGTCCGTAAAGATAACTACTCTATGGCATGAGATTCAAAATGAGATTTGAA

* 1040 * 1060 * 1080

GGCGAAGAGGGCTCTGAGCAGAGGTTACTGGCACAACTGTTGGGATTGAAGAGCTCTGAC
GGCGAAGAGGGCTCCGAGCAGAGGTTACTGGCACAACTGTTGGGATTGAAGAGCTCTGAC

* 1100 * 1120 * 1140

CCTACTAGGTGGCAAAATCAAATGGAGATCCCTCAAGGTGAGATGGGATGAGACTTCT
CCCACGAGGTGGCAAAATCAAATGGAGATCCCTCAAGGTACGGTGGGATGAGACCACT

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* 1160 * 1180 * 1200
 ACTATTCCCTCGACCTGATAGAGTATCTCCGTGGAAAGTAGAGGCCAGCTCTTCTCCTCCT
 ACTATTCCCTCGCCCTGATAGAGTATCCTGGAAAGTAGAGGCCAGCTCTTCTCCTCCT

* 1220 * 1240 * 1260
 GCTTTGAGTCCCTGTCACCAATGCCCTAGGCCTAAGAGGGCCCAGATCTAATCTAGCAGCTTCA
 GCTTTGAGTCCCTGTCACCAATGCCCTAGGCCTAAGAGGGCCCAGATCTAATCTAGCAGCTTCA

* 1280 * 1300 * 1320
 TCTCCCTGACTCTTCGATGCTTACCGAGGAAGGTCACTAAGGCAAACATGGACCCTTA
 ACTCCCGACTCTTCGATGCCGATAGGCAAAGGCTCATCTAAGGCAAACATGGACCCTTA

* 1340 * 1360 * 1380
 CGAGCAAGGGACTTCAAGGGTCTGCAAGGTCAAGAATACTCGACCTTGAGGACGAAA
 CGGCAAGGGACTTCAAGGGTCTGCAAGGTCAAGAATACTCGACCTTGAGGACGAAA

* 1400 * 1420 * 1440
 CATACTGAGACTGTAGACTGATGCTCCTGAGAAATTCTGTTGTCTGGCAATCTTCAGCG
 CATGTTGAGACTGTAGACTGATGCTCCTGAAATTCTGTTGTCTGGCAATCTTCAGCG

* 1460 * 1480 * 1500
 GATGATGAAAGGTTGACCTGCTTTGGGTTCTAGAGATATGATCTGAGAAACTGGATA
 GATGATGAAAGGTTGACCTGATTTCAAGGGTTCTAGAGATATGAGAAACTGGATA

* 1520 * 1540 * 1560
 TCCTCAGGGAGGCATGAAACCTACTTACACAGATTTGCTCTGGCTTGGGACTAACATA
 TCCTCAGGTAGGCATGAAACCTACTTCCACGGATTGCTTCTGGCTTGGGACTAACATA

* 1580 * 1600 * 1620
 GATCCCATGGCATGGTCAGGGATACCTTTATGACCATT---CATCATCACCTTCTATG
 GAACCCACCTCAAGGTCACTGATACCTTTATGACCCTTATCATCACCCACCTCTGTG

* 1640 * 1660 * 1680
 CCTGCCAAAGAGAAATCTTGAGTGAATTAGGCAAGTTGGATTATCTTGCTAACCAAGTGG
 GCTGCCAAAGAAATCTGAGGCAAGGGATGGCAAGTTGAATTATCTTGCTAACCAAGTGG

* 1700 * 1720 * 1740
 CAGATGATAACACTCTGGCTCTCCCTGAAGTTACATGAATCTCCTAAAGGTACCTGCAGCA
 ---ATGATGCACTGAGGCTTCTCCCTGAAGTTACATGAATCTCCTAAAGTCCCTGCCGCA

* 1760 * 1780 * 1800

ACTGATGCGTCTCTCCAAGGGCAATGCAATGTTAAATACAGCGAATATCTCTTCTTAAT
TCTGATGCCTCTTCCAAGGGATACGCAATGCCAATTACCGCGAATATGCTTCCCTCGT

* 1820 * 1840 * 1860

GGTCTATCGACTGAGAATGCTGGTGGTAACGGCCAATACGTCCACGTGCTTTGAATTAT
GAGTCACTGAGAATGCTGGTGGTAACGGCCAATACGTCCACGTGCTTTGAATTAT

* 1880 * 1900 * 1920

TATGAGGAAGTGGTCAATGCTCAAGCCCAGCTCAGGCTAGGGAGCAAGTACAAAACCA
TTGAGGAGGGTTCAT-----GCTCAGGCTAGGGAGCAAGTACAAAACCA

* 1940 * 1960 * 1980

CCCTTCA---CGATACAAGAGGAGACAGCAAAGTCAAGAGAAGGGAACTGCAGGCTTTG
CC-TCCGCTCG-TACAAGAGGAGCAGCAAAGCAAGAGAAGGGAACTGCAGGCTTTG

* 2000 * 2020 * 2040

GCATTCTCTGACAAACAACGTGAATGGGACAGACTCAACCATGTCAGAGAAACAACT
GCATTCTCTGCTGACAAACGTGAATGGGACAGATCAACTTGTCTCAGAGAAACAACT

* 2060 * 2080 * 2100

TGAATGATGCTGCGGGGCTTACACAGATGGCATCACCAAAGGTTCAAGGAGCTTCAAGATC
TGAATGACCTGCGGGGCTTACCGAGATGGCATCACCAAAGGTTCAAGGAGCTTCAAGATC

* 2120 * 2140 * 2160

AGTCAAAAGGGTCAAAATCAACAAAGATCATCGTGAACAGGGAGACCATTCCAGACTA
AGTCAAAAGGGTCAAAATCAACAAAGATCATCGTGAACAGGGAGACCATTCCAGGTAA

* 2180 * 2200 * 2220

ATAATCCTCATCCGAAGGGAGCTCAAACGAAACCAACTCAAGTAGGGAGTGCACAAAGG
CTAAACCCCATCCGAAAGACCTTCAAACCAAAACAAACTCATGTAGGGAGTGCACAAAGG

* 2240 * 2260 * 2280

TTCAACAGCAGGGATTGCACTTGGCCGTCAGTGGATCTTCAAAGTTCCAACATATG
TTCAACAGCAGGGATTGCACTTGGCCGTCAGTGGATCTTCAAAGTTCCAACATATG

* 2300 * 2320 * 2340

AGGAGTTAGTCGCTGAGCTGGACAGGGCTTTGAGTTCAATGGAGAGTTGATGGCTCCTA
AGGAGTTGGTACTGAAATTGGAGAGGCTTTGAGTTCAATGGAGAGTTGATGGCTCCTA

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* 2360 * 2380 * 2400

AGAAAGATTGGTGATAGTTACACAGATGAAGAGAATGATATGATGCTTGTGGTGACG
AGAAAGATTGGTGATAGTTACACAGATGAAGAGAATGATATGATGCTTGTGGAGACG

* 2420 * 2440 * 2460

ATCCTGGCAGGAGTTTGTTCATGGTCGAAAAATCTTCATATACACGAAACAGGAAG
ATCCTGGCAGGAGTTTGTTCATGGTCGAAAAATCTTCATATACACGAAACAGGAAG

* 2480 * 2500 * 2520

TGAGGAAGATGAACCCGGGAACTTAAAGCTGTAGGAGCGAGGAAGAACAGTTGTTGGGG
TGAGGAAGATGAACCCGGGAACTCTATGCTGTAGGAACGAGGAAGAACAGTTGTTGGGG

* 2540 * 2560 * 2580

AAGGATCAGATGCAARGGACGCCAAGTCTGCATCAAATCCTTCATTGTCCAGCGCTGGCA
AAGGATCAGATGCAAAGGACGCCAAGTCTGCATCAAATCCTTCATTGTCCAGCGCCGGAA

ACTCTTAA
ACTCTTAA

Figure 9

Alignment of MNT, BnARF2, OsARF2 proteins

*	20	*	40	*	
MNTwt :	MASSEVSMKGNGR	GDNFSSSGFSDPKE	TRNVSVAGEGOKSNST	RSARAFRALDP	
BnARF2 :	MASSEVSMKGNRGR	G	ENFSSAGVS	DP-----TVAGEAQK	
OsARF2 :	TOSNRSVAAERVVDP				-GDP

60	*	80	*	100	*	
MNTwt :	EARLYRELWHACAGPLVTVP					RQDRVFYFPQGHIEQVEASTNQAAEQQOMPLYDLP
BnARF2 :	EARLYRELWHACAGPLVTVP					RQDRVFYFPQGHIEQVEASTNQAAEQQOMPLYDLP
OsARF2 :	---LYDELWHACAGPLVTVP					RVGDLVFYFPQGHIEQVEASMNQVADSMQRLYDLP

120	*	140	*	160	*	
MNTwt :	SKLLCRVENVDLKAEADTDEVYAQITL					LEPANEODENATEKEAPLP
BnARF2 :	SKLLCRVENVDLKAEADTDEVYAQITL					LEPVPDENSLKEAPP
OsARF2 :	SKLLCRVENVELKAEADTDEVYAQITL					LEPEPEQNEMAVEKTTPTSGP

*	180	*	200	*	220	*
MNTwt :	SFCKTLTASDTSTHGGFSVLRRHADECLPPLDMSRQPP					TQELVAKDLH
BnARF2 :	SFCKTLTASDTSTHGGFSVLRRHADECLPPLDMSRQPP					TQELVAKDLH
OsARF2 :	SFCKTLTASDTSTHGGFSVLRRHADECLPPLDMTQS					PPTQELVAKDLH

*	240	*	260	*	280	*
MNTwt :	HIFRGOPRRHLLQSGWSVFVSSKRLVAGDAFIFL					RGENGELE
BnARF2 :	HIFRGOPRRHLLQSGWSVFVSSKRLVAGDAFIFL					RGENGELE
OsARF2 :	HIFRGOPRRHLLQSGWSVFVSSKRLVAGDAFIFL					RGENGELE

280	*	300	*	320	*	
MNTwt :	PSSVISSHSMHLGVATAWHAI					STGTMFTVYYK
BnARF2 :	PSSVISSHSMHLGVATAWHAI					STGTMFTVYYK
OsARF2 :	PSSVISSOSMHLGVATAWHAI					NIKSMTVYYK

340	*	360	*	380	*	
MNTwt :	YSTIGMRFKMRFEGEAAPEQRF					TGTIVGIE
BnARF2 :	YSTIGMRFKMRFEGEAAPEQRF					TGTIVGIE
OsARF2 :	YSVGMRFMRFEGEAAPEQRF					TGTIVGIE

*	400	*	420	*	440	*
MNTwt :	RPDRVSPWKVEPALAPPALSPV					PMPRPKRPRSNIA
BnARF2 :	RPDRVSPWKIEPALSPV					PMPRPKRPRSNIA
OsARF2 :	RPDRVSPWKIEPAS					SPPVNPLPLSRVKRPRPNAPPASPE

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* 460 * 480 *

MNTwt : P L P A - S E L S R V L Q G Q E Y S T L R T K H T E S V E C D A P E N S - V V W O S S A D D D K V D V V V S G
 BnARF2 : P L P A - S G L S E V L Q G Q E Y P T L R T K H V E S V E C D A P E N S - V V W Q S S T D D D K V L V T I S A
 OsARF2 : P A Q A Q R S O N S T V L Q G Q E Q M T L R S N L T E S N D S D V T A H K P M M W S P S P N A A K A H P L T F

500 * 520 * 540 *

MNTwt : S R R Y G S E N W M S S A R H E P T Y T D L L S G F G T N I D P S H G Q R I P F Y D H - S S S P S M P A - K R
 BnARF2 : S R R Y - E N W I S S G R H G P T C T D L L S G F G T N I E P P H G H Q I P F Y D R L S S P P S V A A - R K
 OsARF2 : Q Q R P P M D M W M Q L G R E T D F K D V R S G - S Q S F G D S P G F F M Q N F D E - - A E N R L T S F K N

560 * 580 * 600 *

MNTwt : I I L S D S E G K E D Y L A N Q W Q M I H S G L S I K L H E S P K V P A A T D A S L Q E R C N V K Y S E Y P V L
 BnARF2 : I I L S D Q D G K F E Y L A N Q W - M M H S G L S I K L H E S P K V P A A S D A S F Q G I G N P N Y G E Y A L P
 OsARF2 : Q F Q D D - G S A R H F S D P Y Y Y V - - - - - S P Q P S L T V E S S T O M H T D S K - E L H F W

* 620 * 640 * 660 *

MNTwt : N G L S T E N A G G N E P I R P R A L N Y Y E E V I N F Q A Q A Q A R - E Q - - V T K O P F T H Q E - E T A K
 BnARF2 : R A V T T E N A A G G N E P I R P R A L N Y F E E A U H A Q - - - - A R - E H - - V T K R P A V V Q E - E A A K
 OsARF2 : N G O S T - - V Y G N S R D R P Q N F R F E Q N S S S W L I N D S F A R P E Q P R V I R P H A S I A P V E L E K

* 680 * 700 * 720 *

MNTwt : S R E G N C R I F G I P L - T H I N M - - N G T D S T M S Q E N N - - L N D A A G E T O H A S P K V Q D L S D Q
 BnARF2 : P R D G N C R I F G I P L - V M I N V - - N G T D T P L S Q R N N - - L N D E A G E T O M A S P K V Q D L S D Q
 OsARF2 : T E G S G F K I F G F K V D I I T N A P N N H L S S P M A A T H E P M L Q T B S S I N O L Q P V Q T D C I P E V

720 * 740 * 760 *

MNTwt : S K G S K S T N D H R E Q G E P F Q T N N P H P K D A Q T K T N - - S S R S C T K V H K Q G I A L G R S V D L
 BnARF2 : S K G S K S T N D H R E Q G E P F P V S K P H P K D V Q T K T N - - S C R S C T K V Q K Q G I A L G R S V D L
 OsARF2 : S V S T A G T A T E N E K S G - - Q A Q Q S S K D N O S K T Q V A S T R S C T K V H K Q G I A L G R S V D L

780 * 800 * 820 *

MNTwt : S K F Q N Y E E L V A E L D R L F E F N G E L M A P K K D W L I V Y T D E E N D M M L V G D D P W Q E F C C M
 BnARF2 : S K F Q N Y E E L V T E L D R L F E F N G E L M A P K K D W L I V Y T D E E N D M M L V G D D P W Q E F C C M
 OsARF2 : S K F S N Y D E L K A E L D K M F E F D G E L V S S N K N W O I V Y T D N E C D M M L V G D D P W E E F C S I

* 840 * 860 *

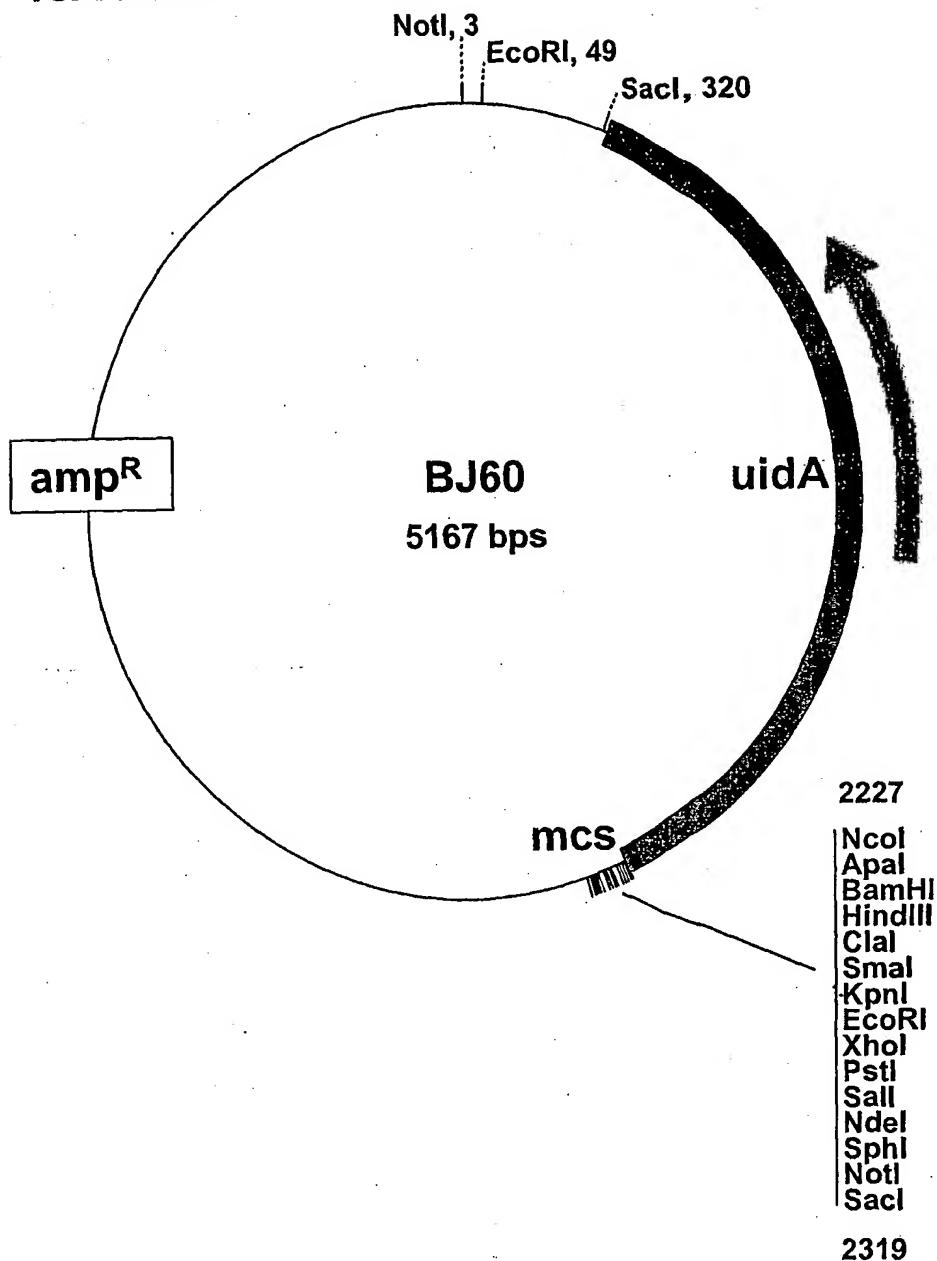
MNTwt : V R K I E I Y T K E E V E K M N P G T I S C R S E E E A T I G E G G S D A K D A K S A S N P S I S S A G N S
 BnARF2 : V R K I E I Y T K E E V E K M N P G T I C C R N E E P V T G E G G S D A K D A K S A S N P S I S S A G N S
 OsARF2 : V R K I Y I Y T K E E V O K L N S K S N A P R K D - - - - - D S S E N E K G H L E M P N K S D N -

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Figure 10

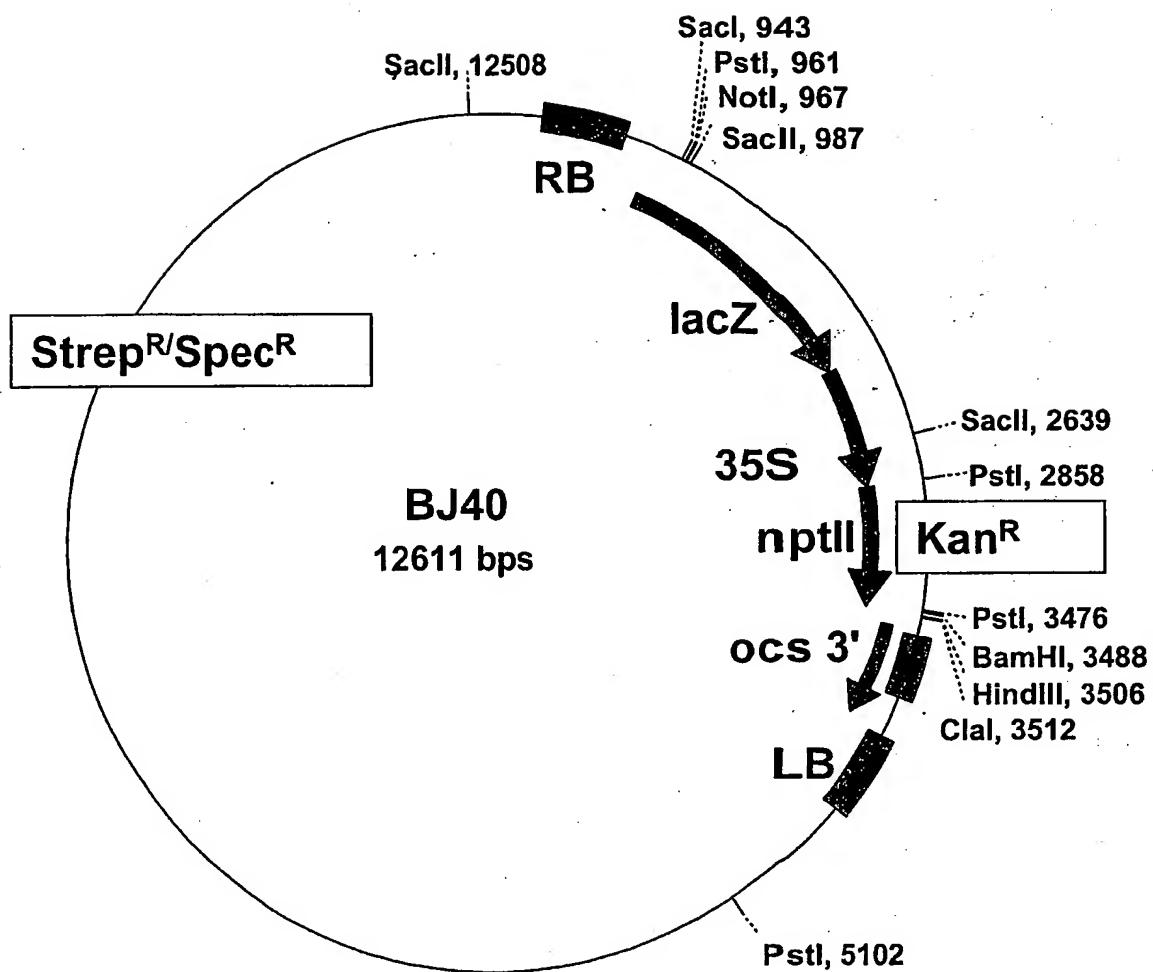
Vectors used for cloning

10A BJ60



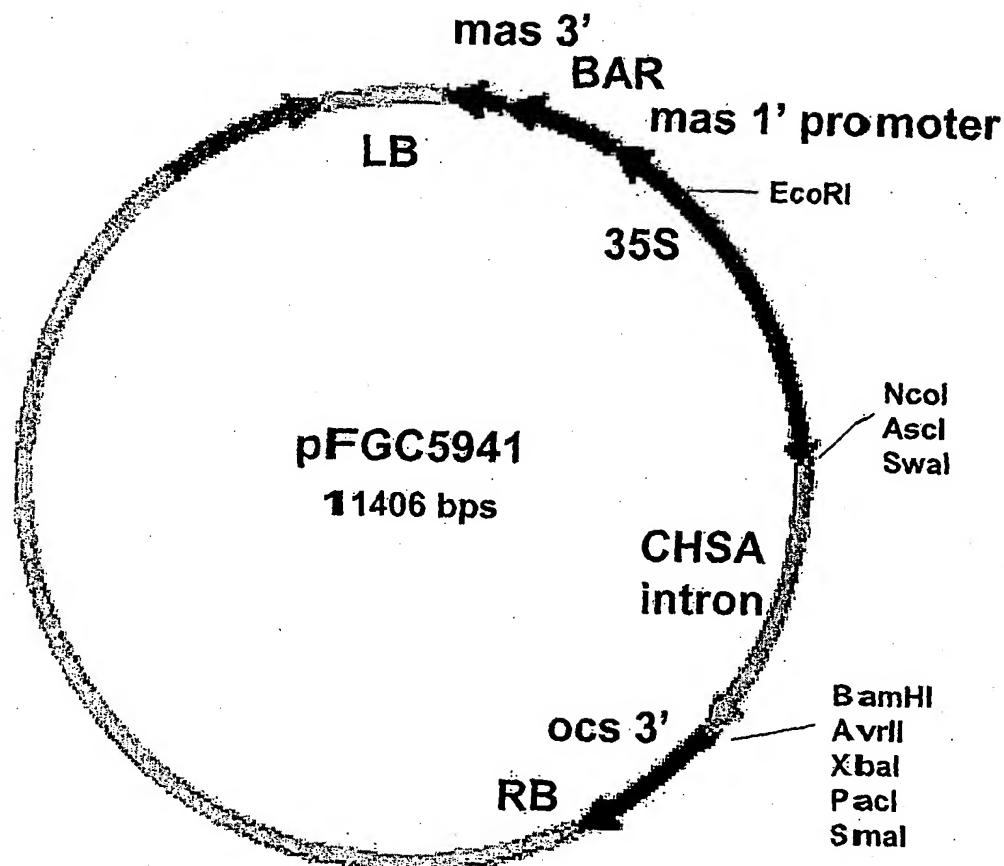
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10B BJ40



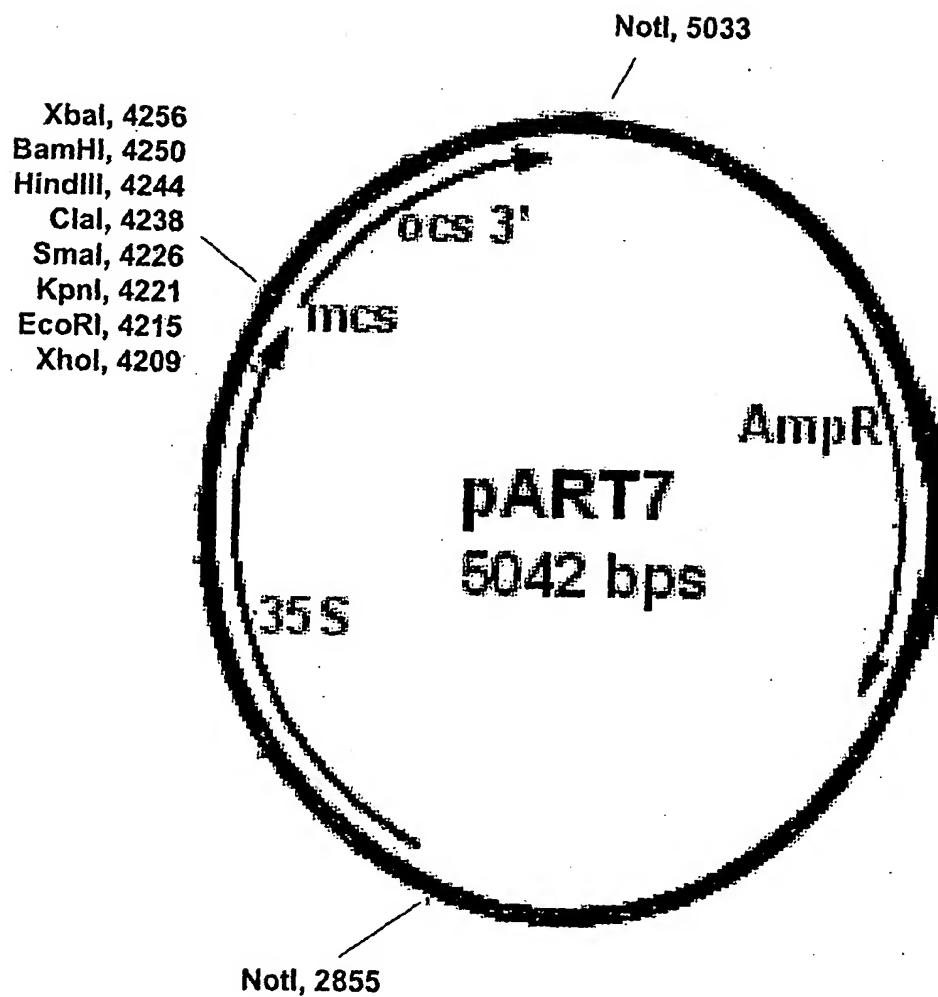
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10C pFGC5941



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10D pART7



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0E BJ36

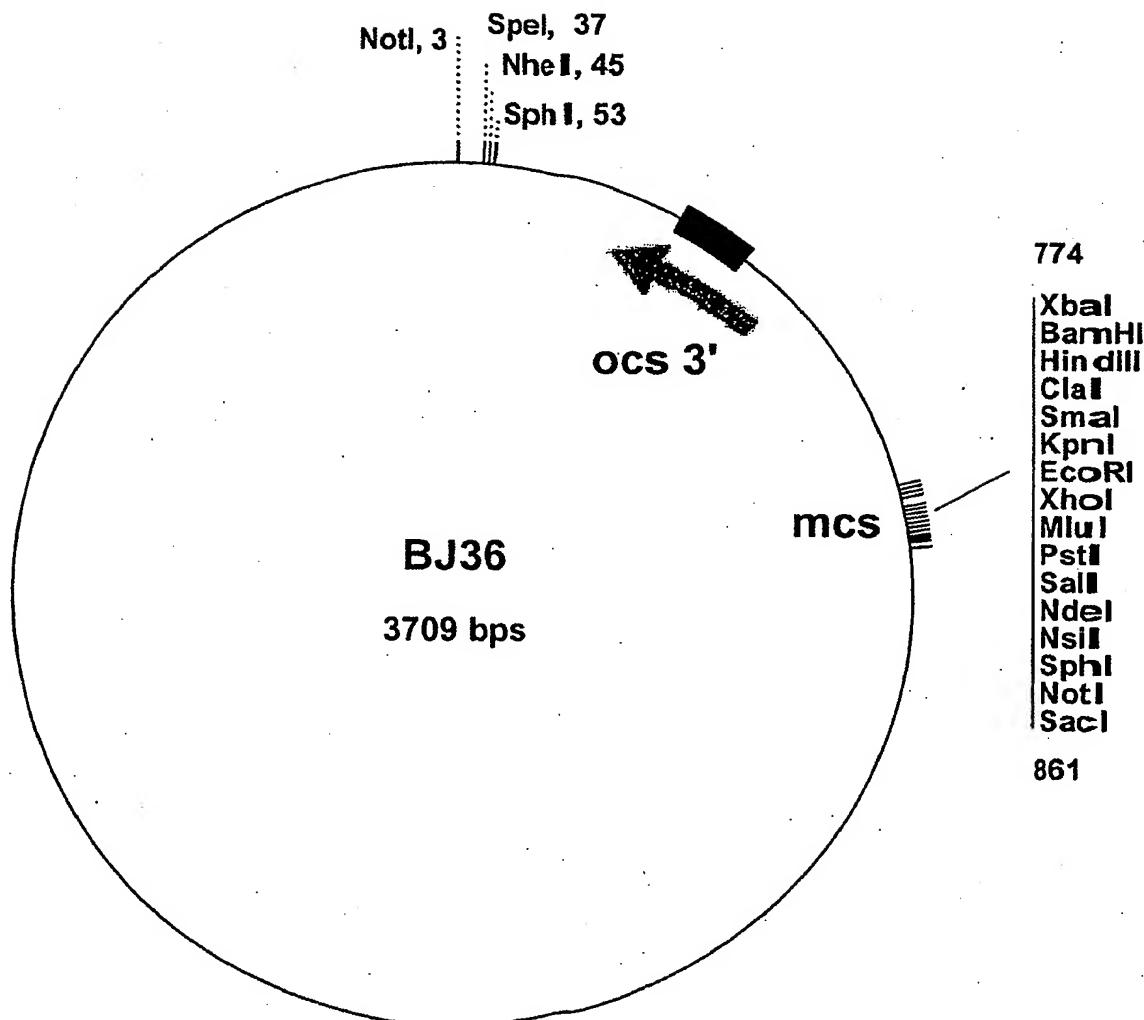
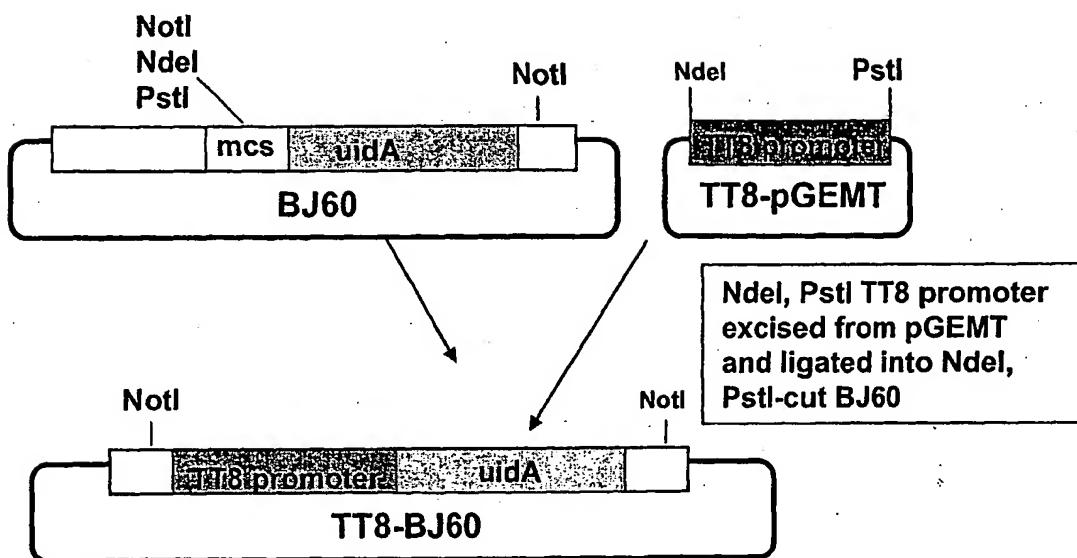


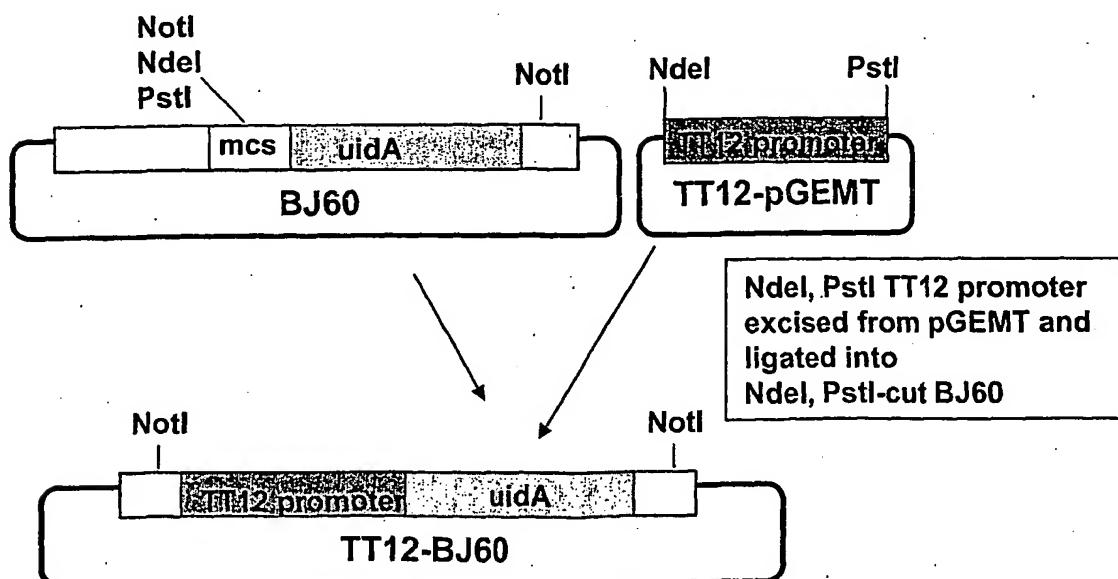
Figure 11

Cloning strategy, Example 3

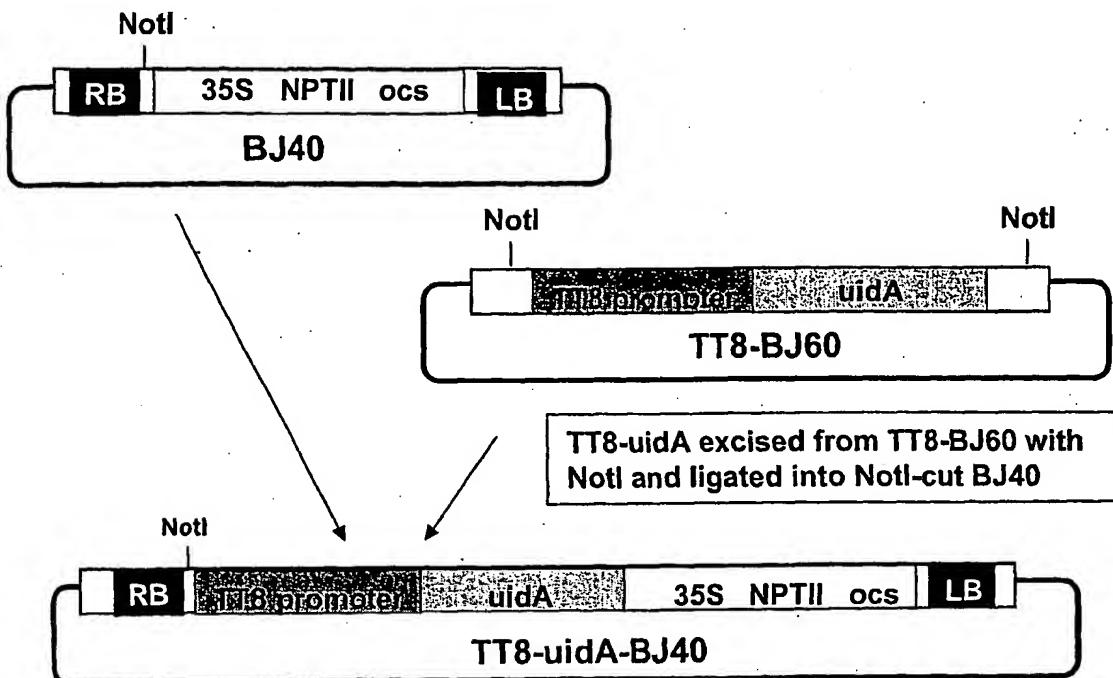
Example 3a(i)



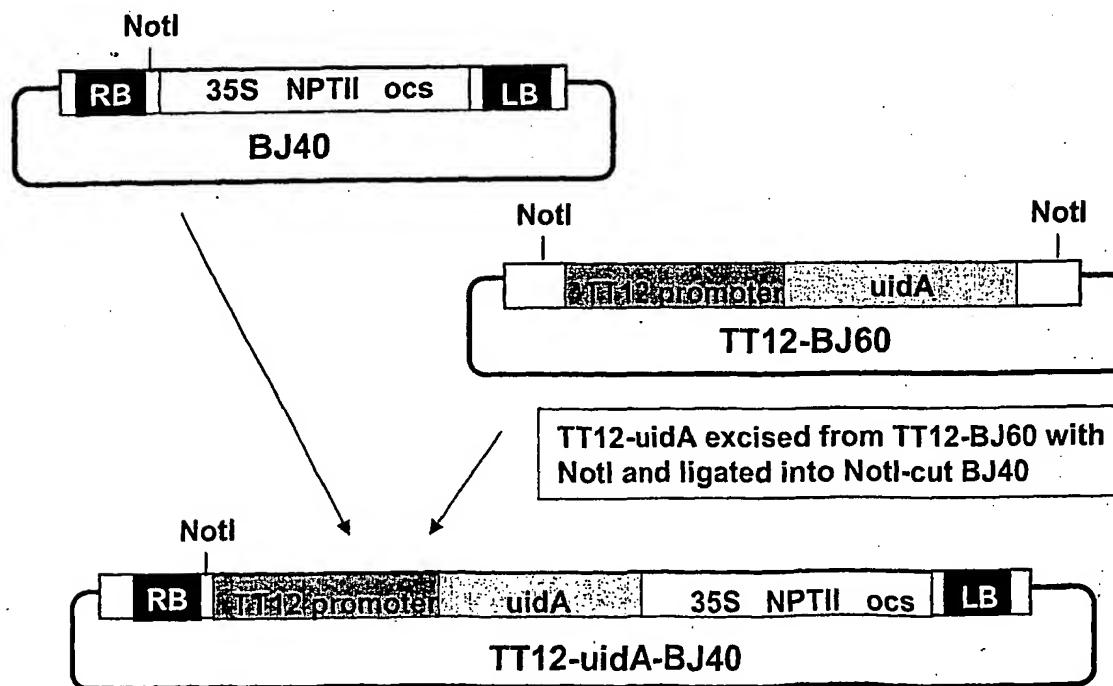
Example 3a(ii)



Example 3b(i)



Example 3b(ii)



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Figure12

TT12::uidA



Figure 13A

Cloning strategy, Example 4

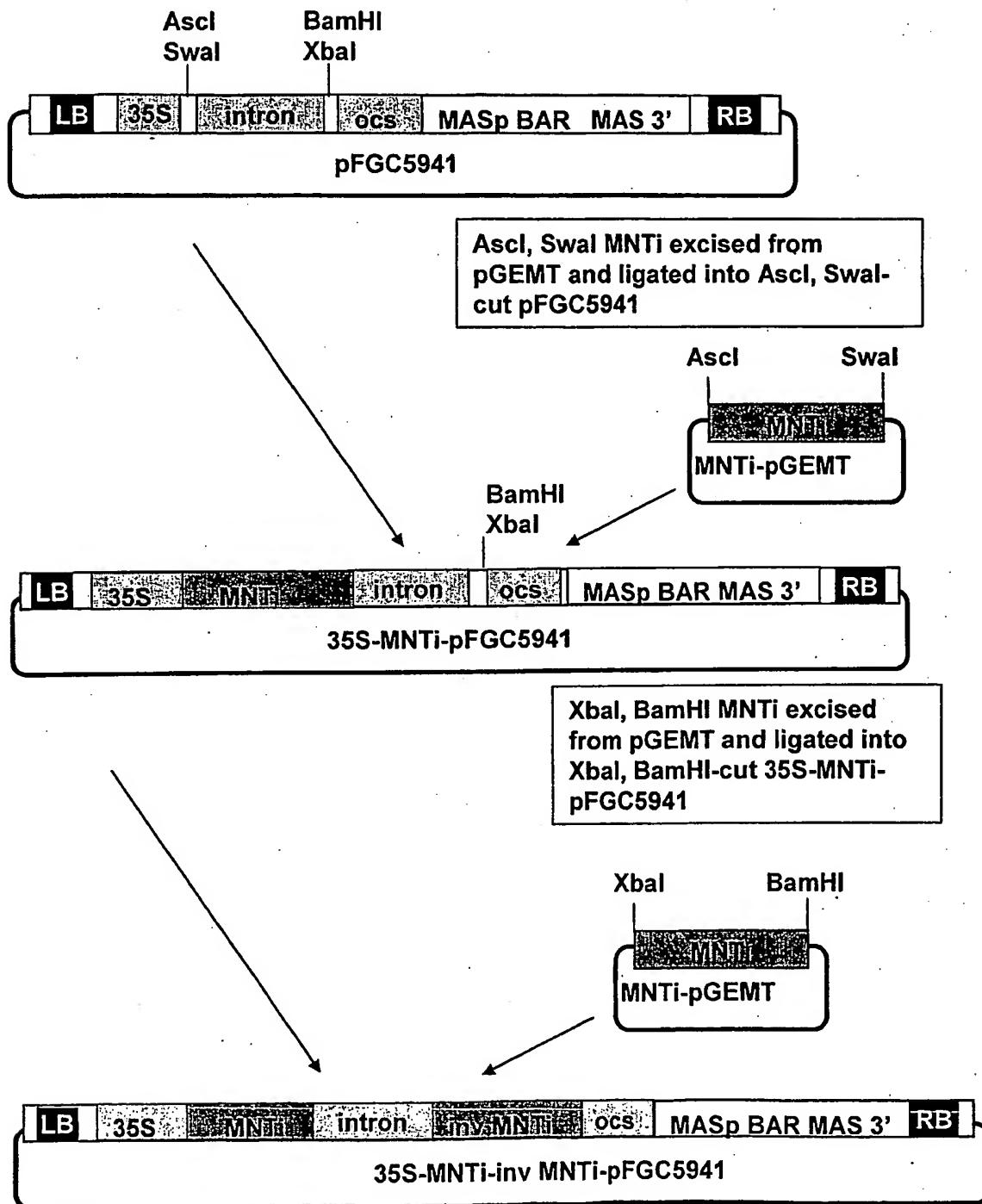


Figure 13B

Plants transformed with the 35S::MNT RNAi vector Example 4

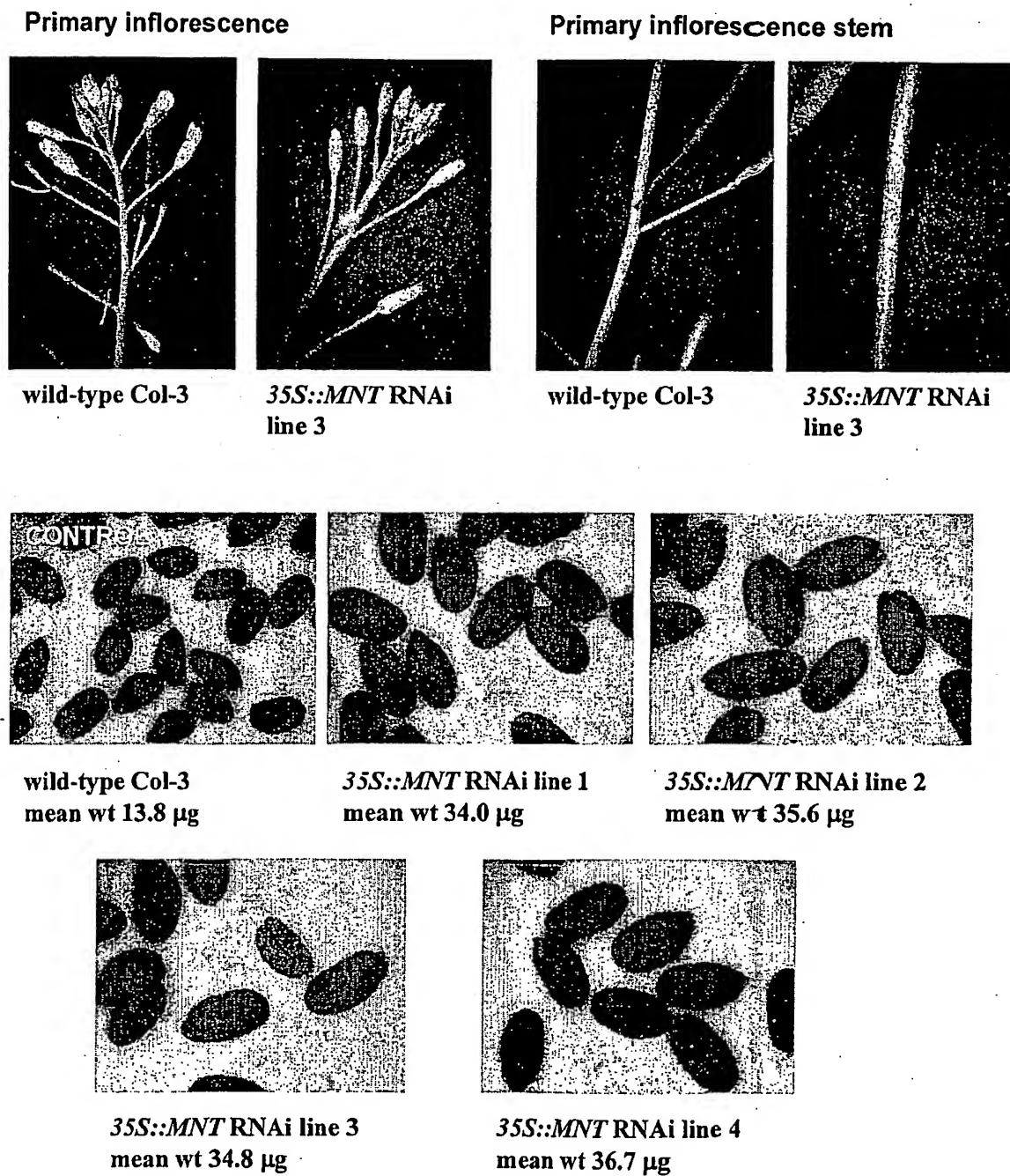


Figure 14

Cloning strategy, Example 5

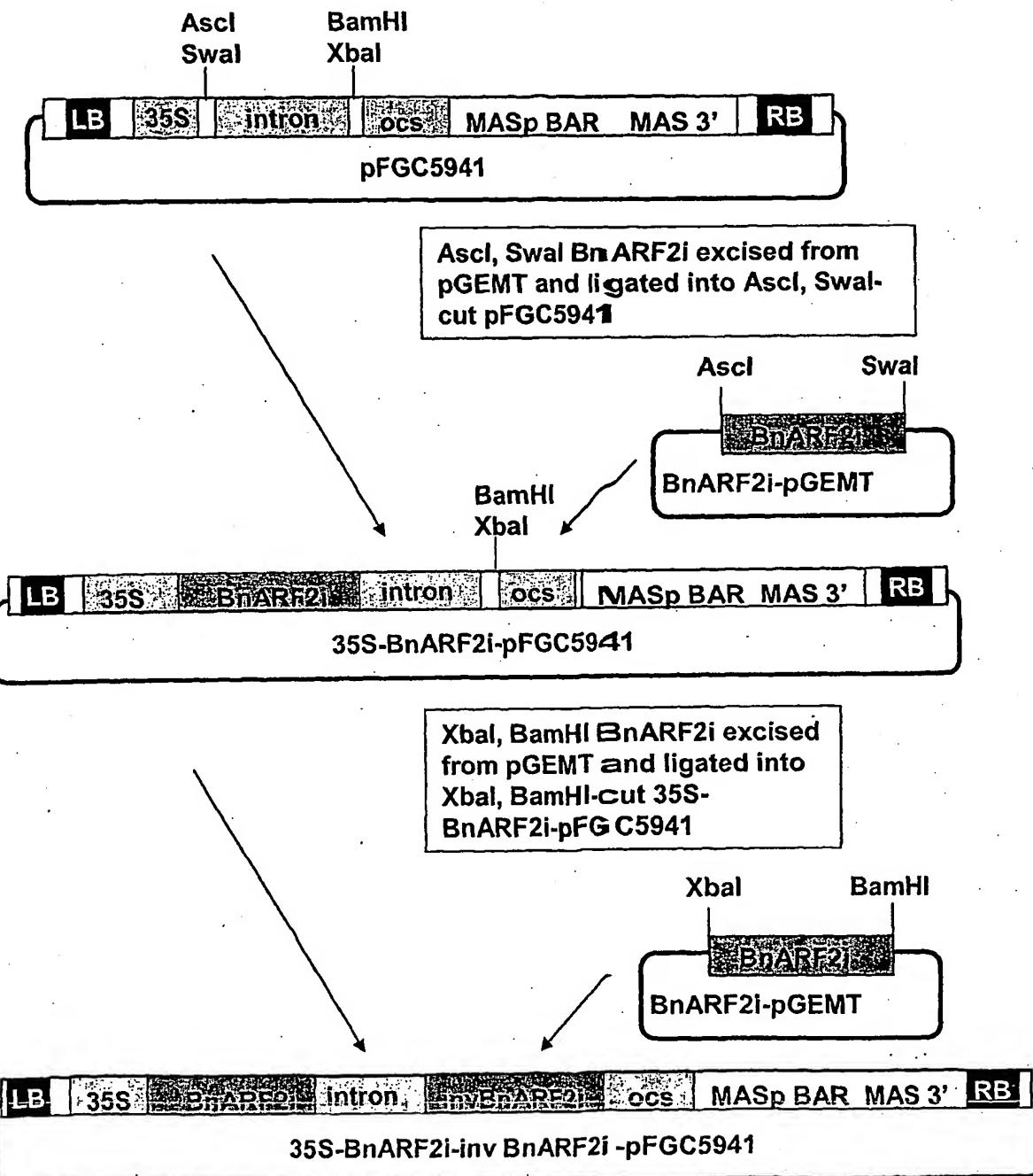
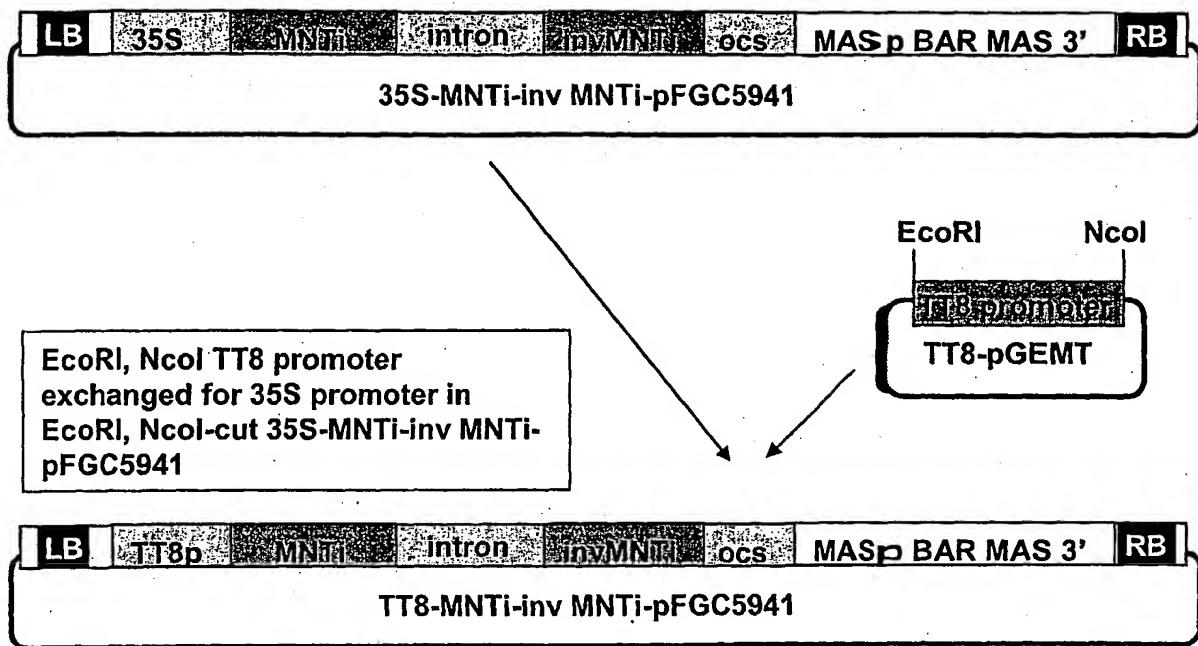


Figure 15

Cloning strategy, Example 6

Example 6a(i)



Example 6a(ii)

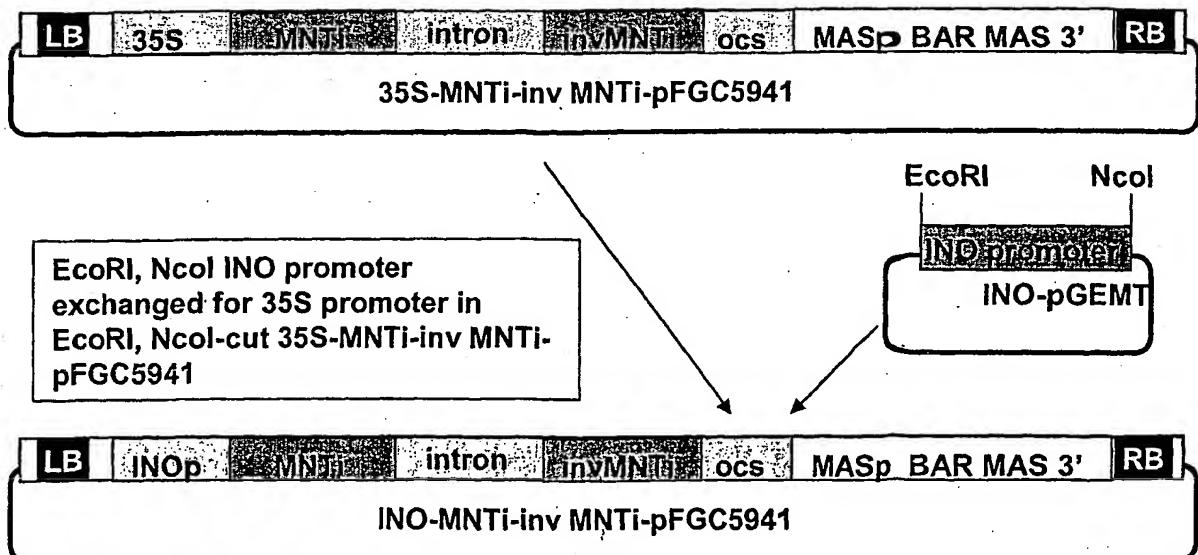
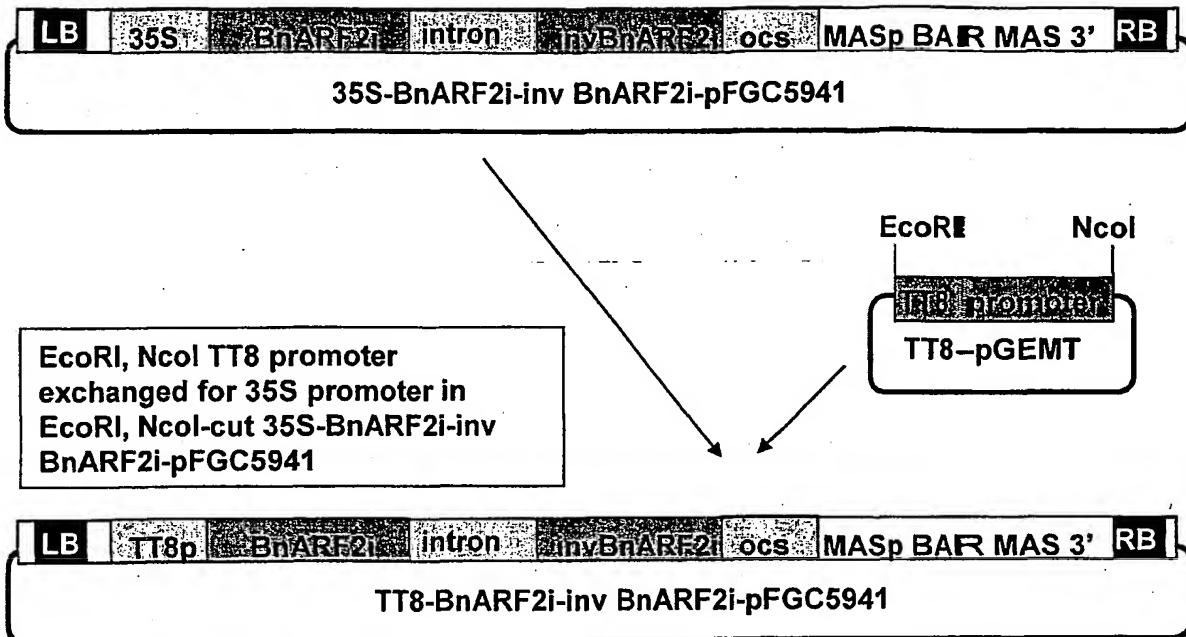


Figure 16

Cloning strategy, Example 7

Example 7a(i)



Example 7a(ii)

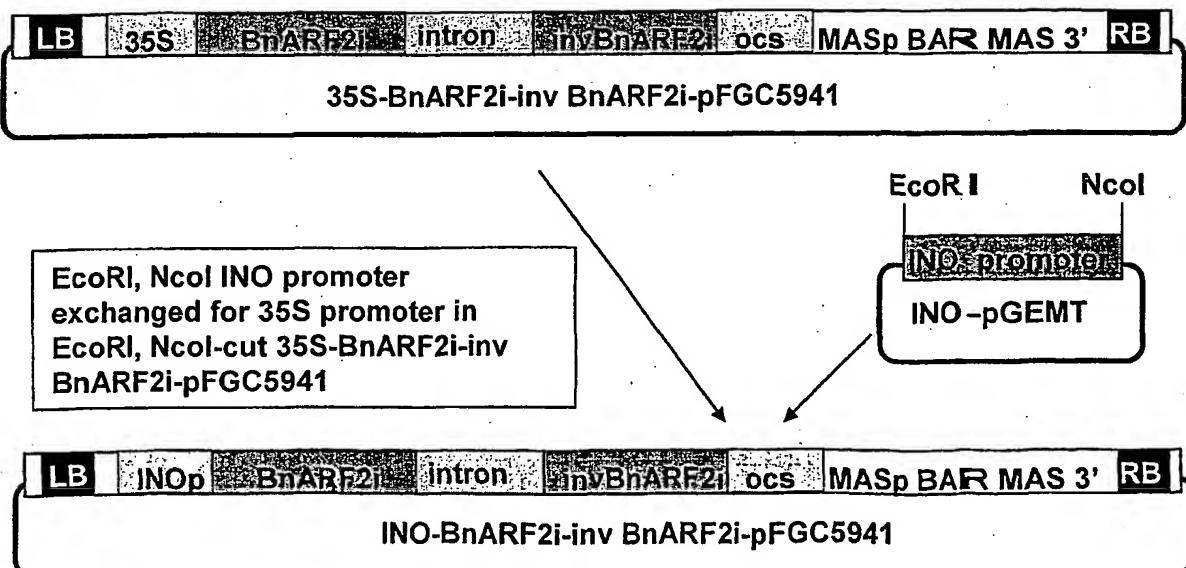
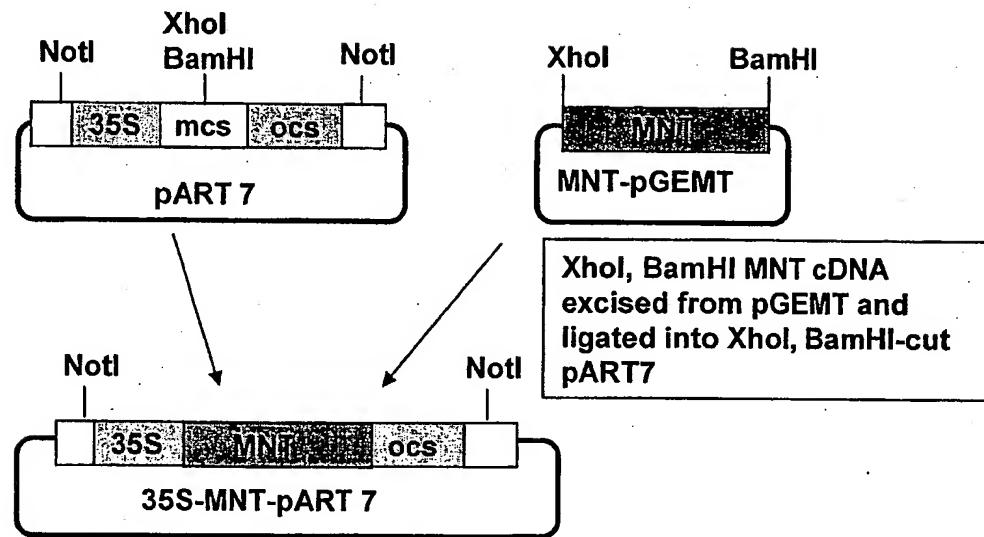


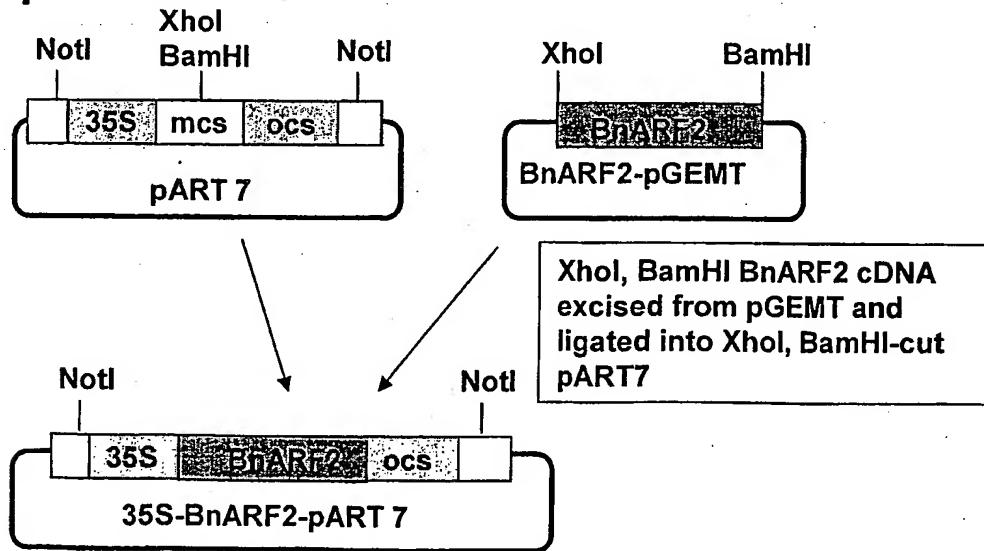
Figure 17A

Cloning strategy, Examples 8, 9

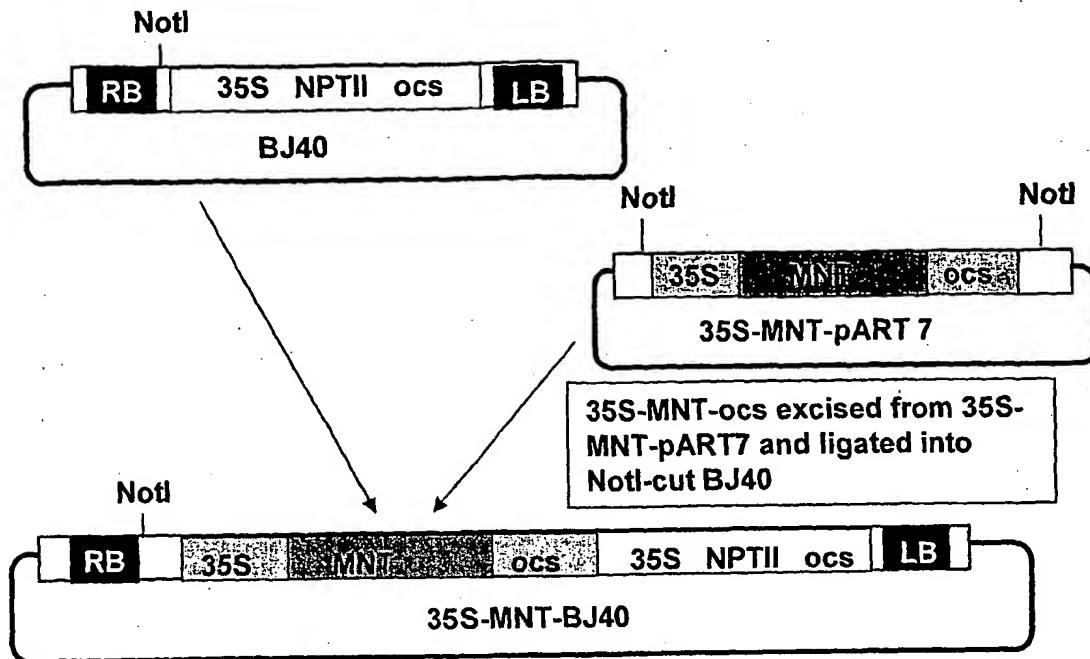
Example 8a



Example 9a



Example 8b



Example 9b

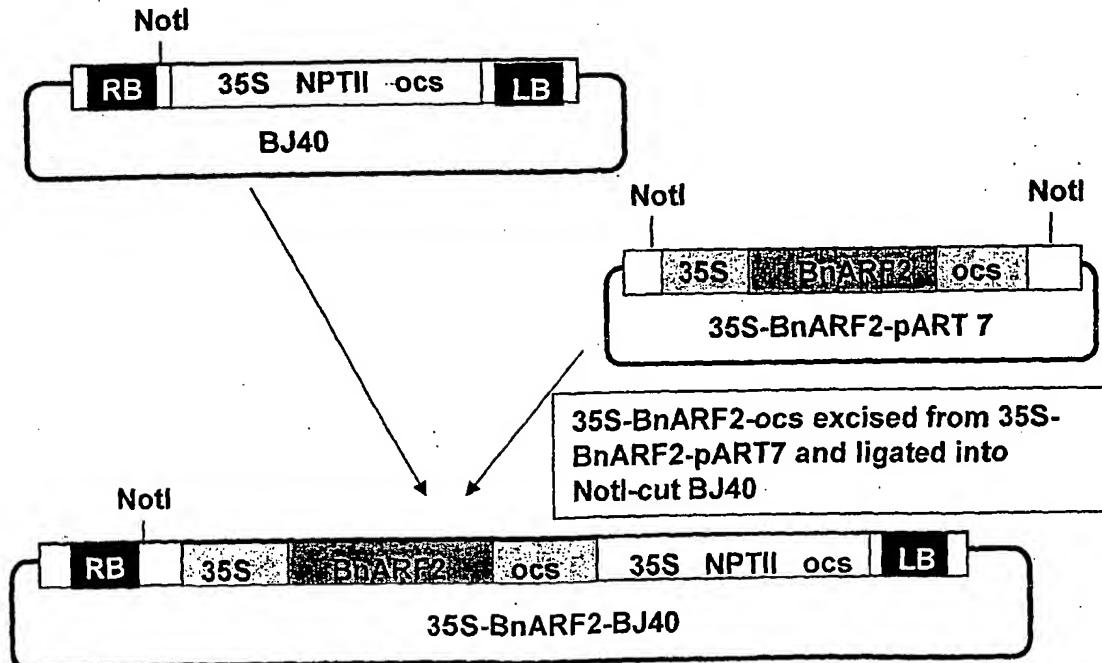


Figure 17B

Analysis of wild-type plants transformed with the
35S::MNT vector

Example 8

35S::MNT



wild-type Col-3
mean wt 15.0 μ g



35S::MNT line 1
mean wt 23.1 μ g



35S::MNT line 2
mean wt 28.7 μ g



35S::MNT line 3
mean wt 24.6 μ g

Semiquantitative RT-PCR

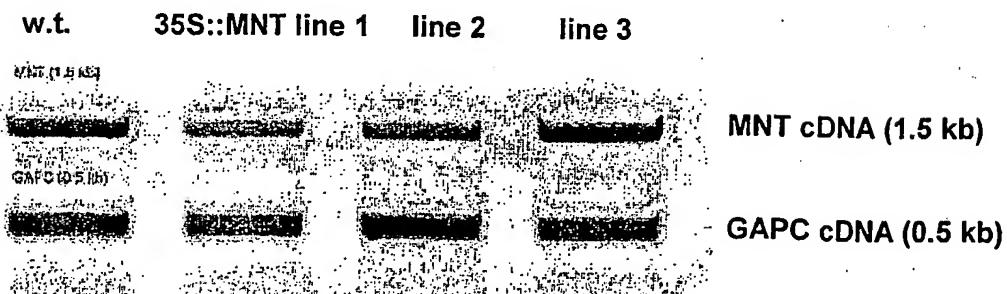
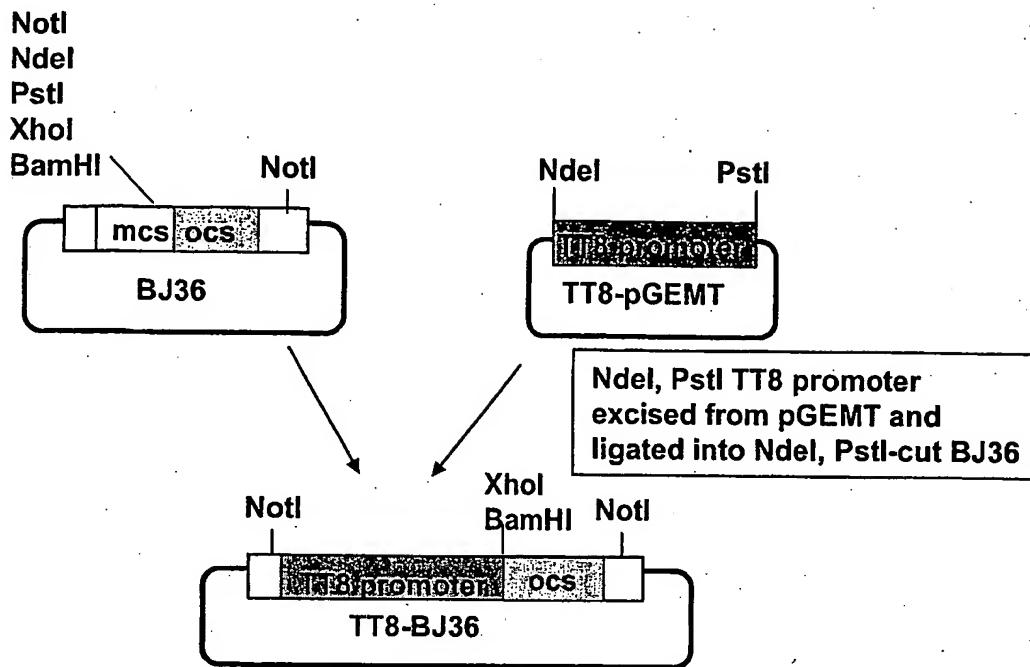


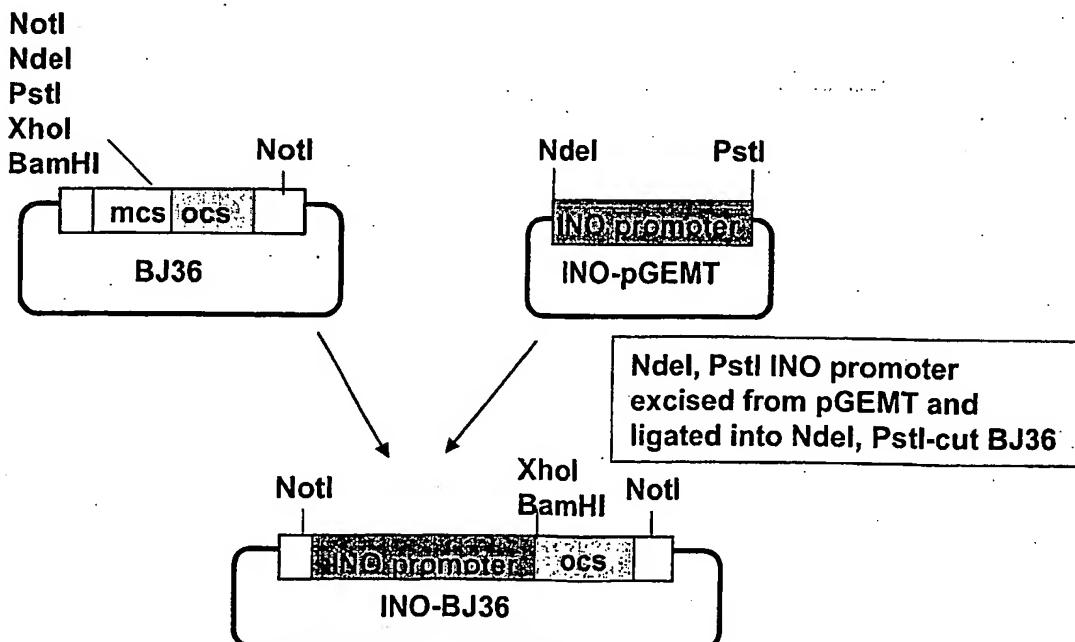
Figure 18

Cloning strategy, Example 10

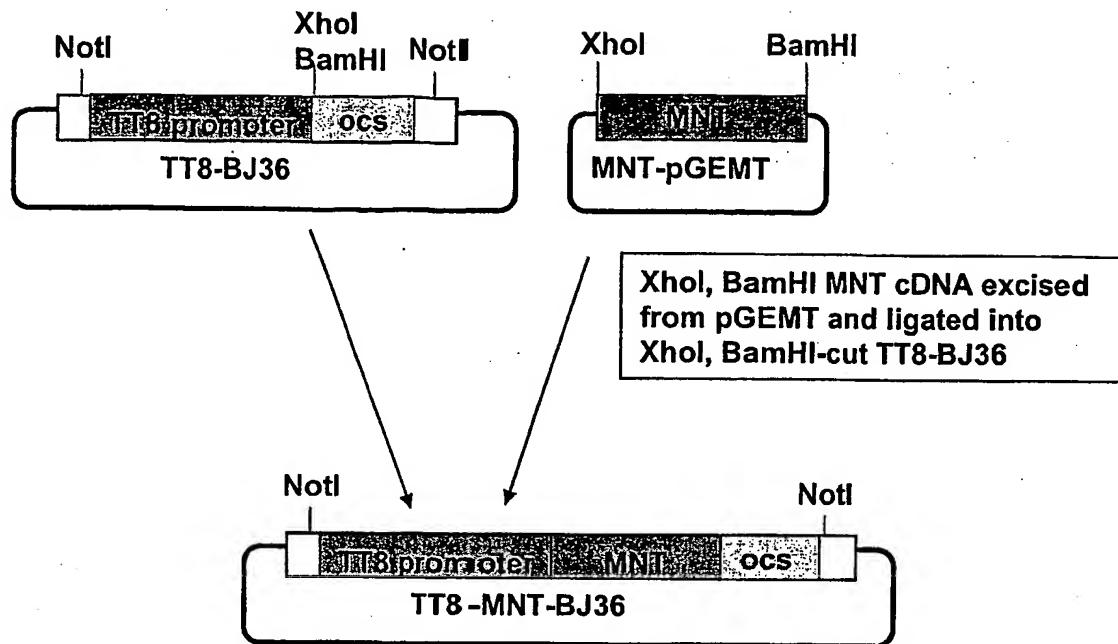
Example 10a(i)



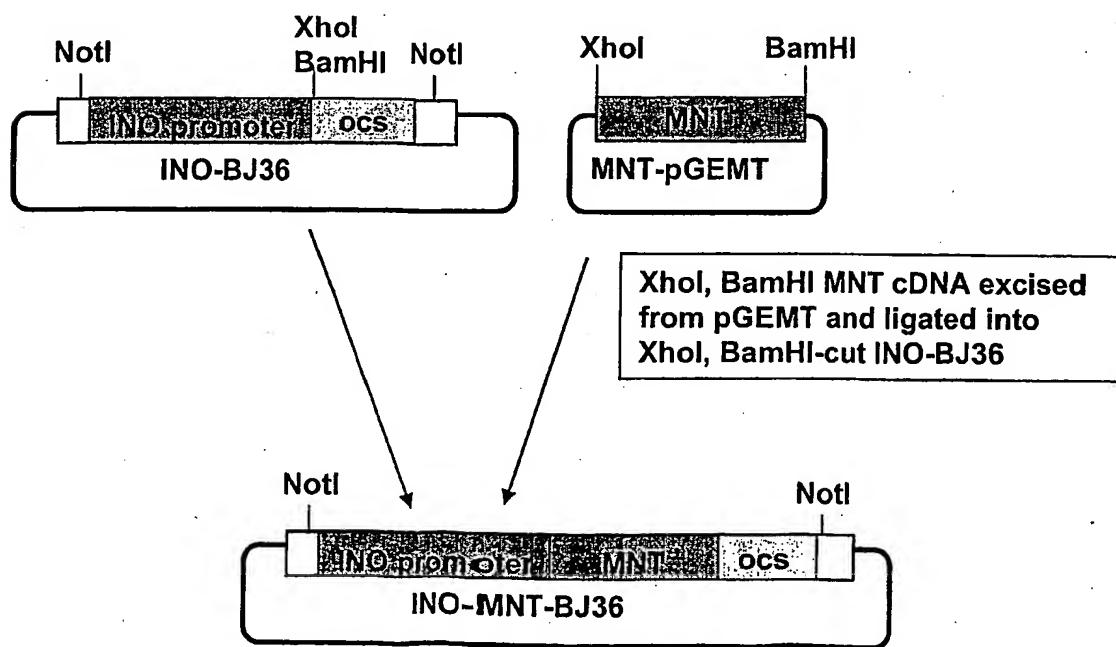
Example 10a(ii)



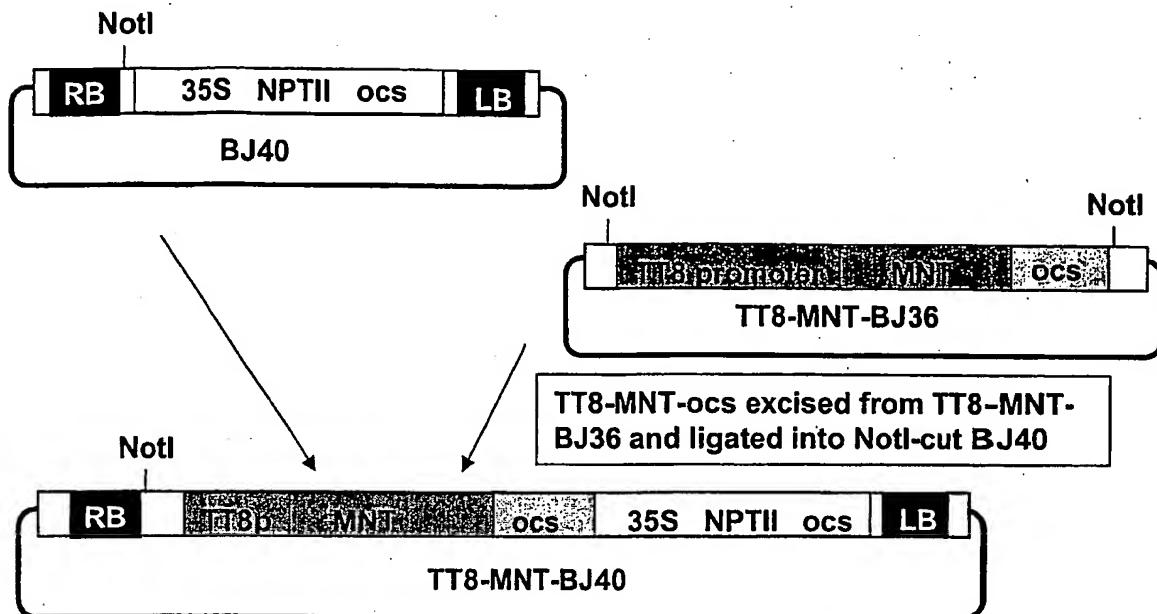
Example 10b(i)



Example 10b(ii)



Example 10c(i)



Example 10c(ii)

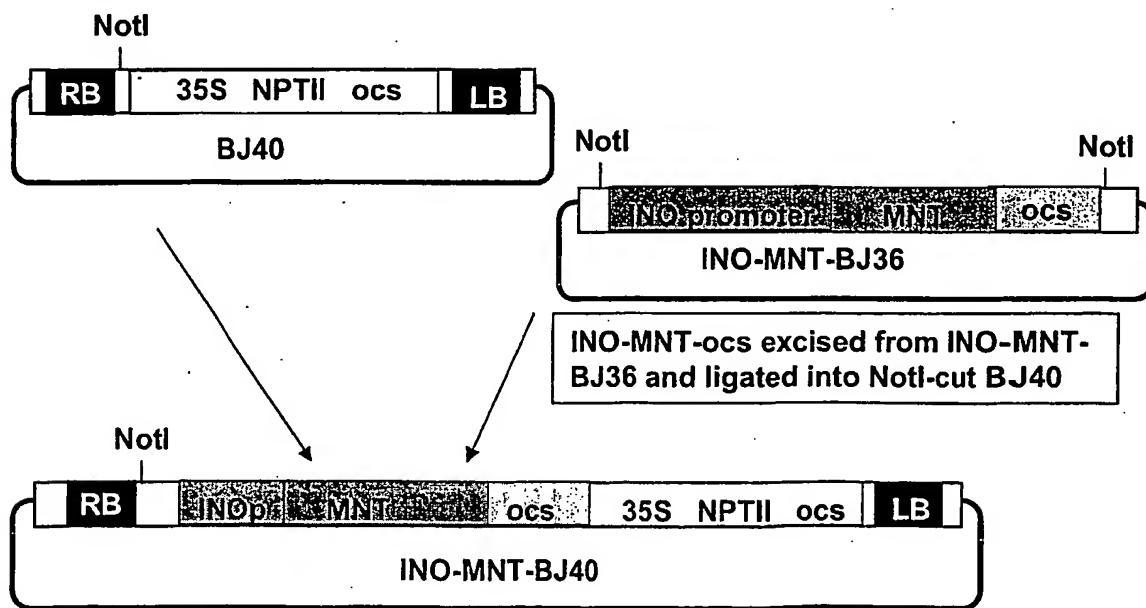
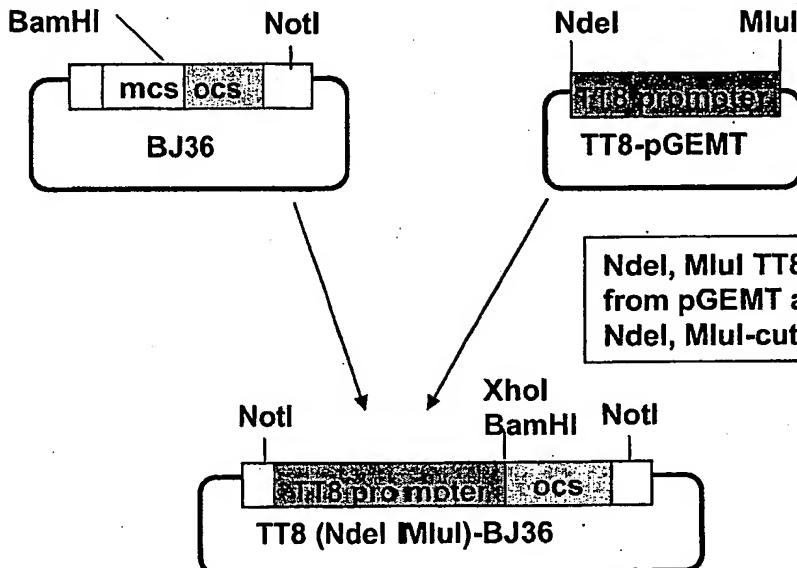


Figure 19

Cloning strategy, Example 11

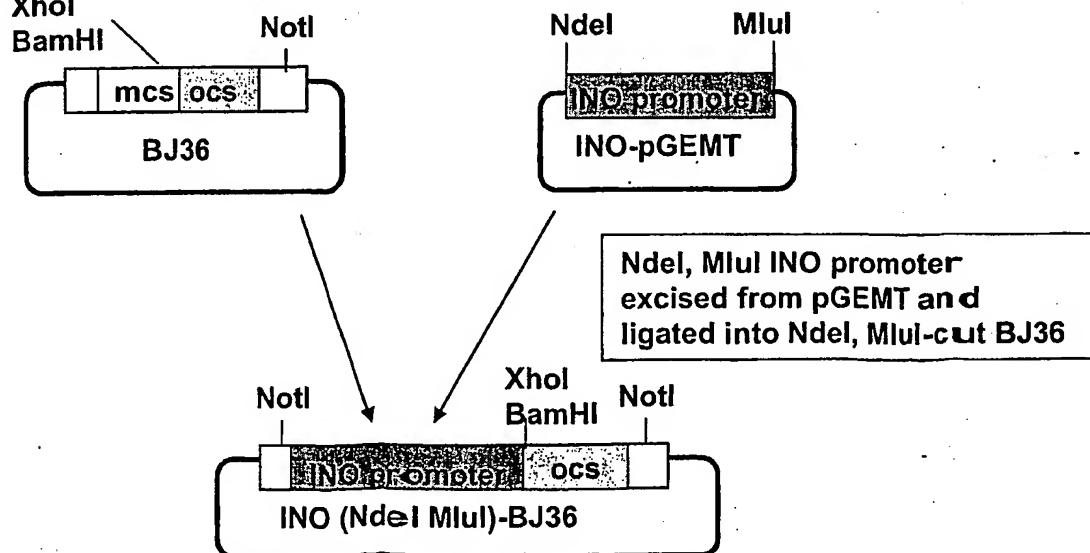
Example 11a(i)

NotI
NdeI
MluI
XbaI

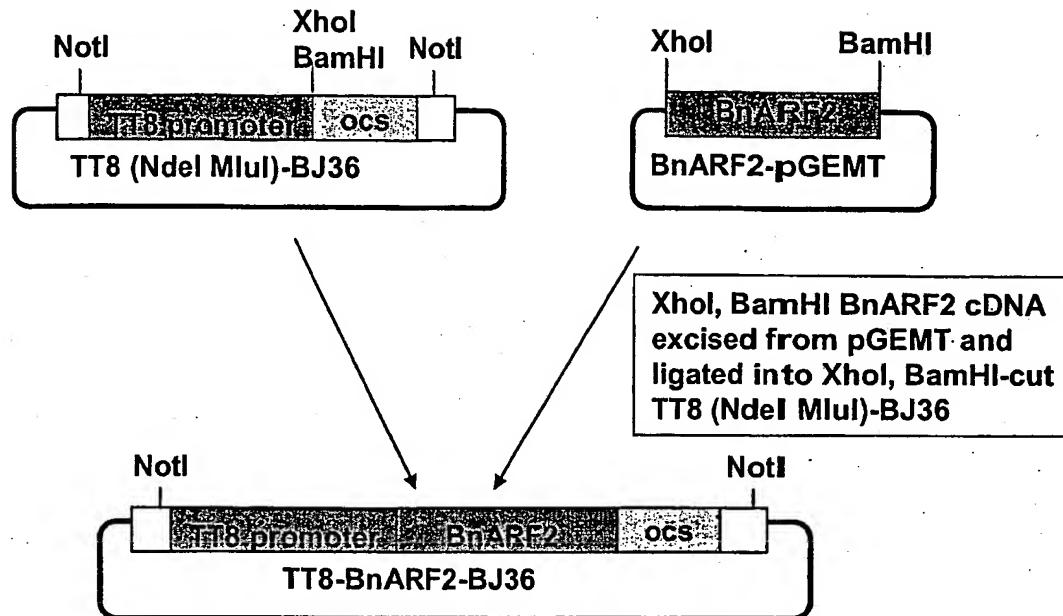


Example 11a(ii)

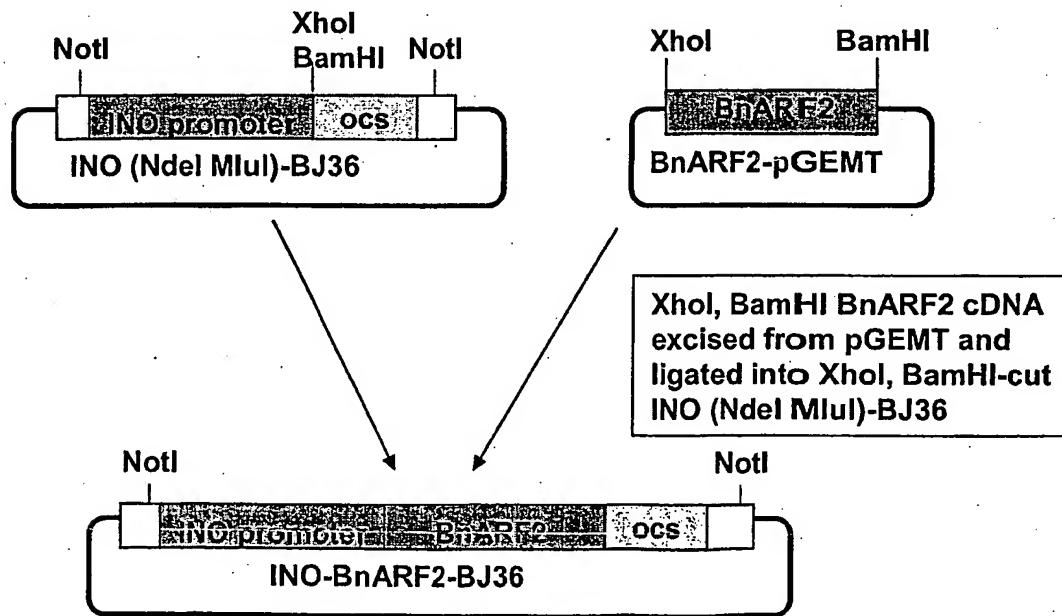
NotI
NdeI
MluI
XbaI



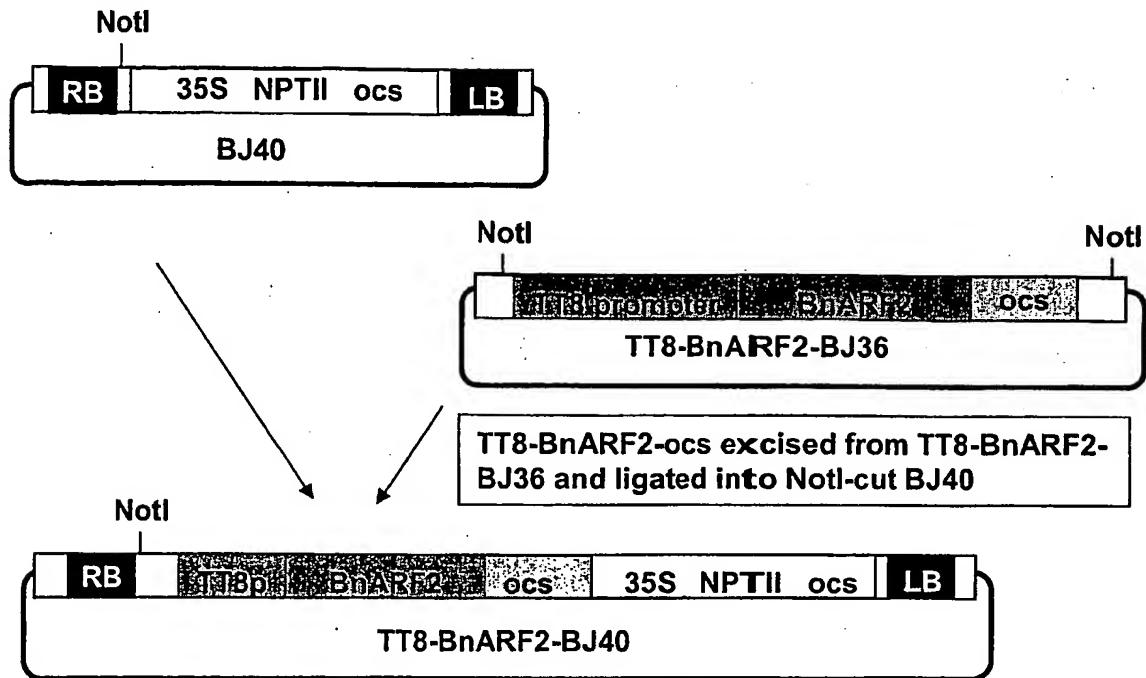
Example 11b(i)



Example 11b(ii)



Example 11c(i)



Example 11c(ii)

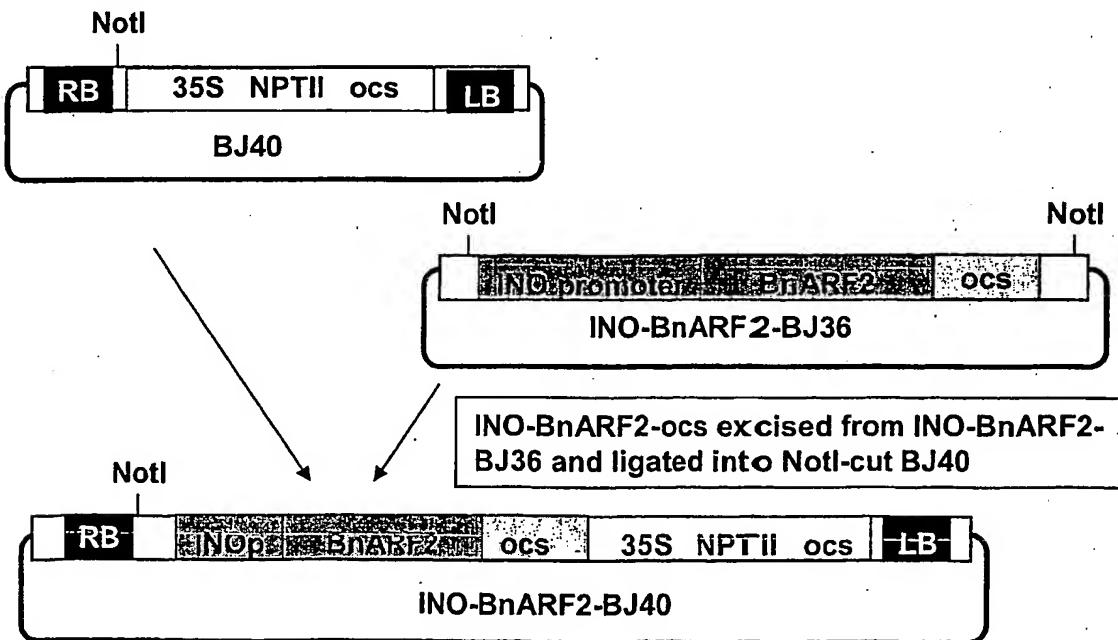
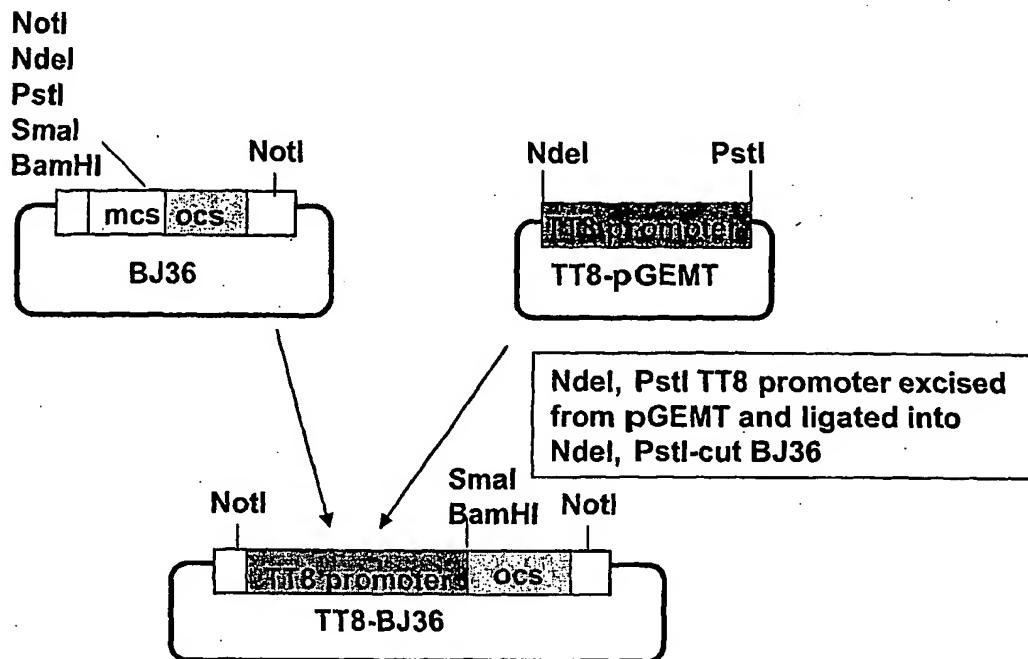


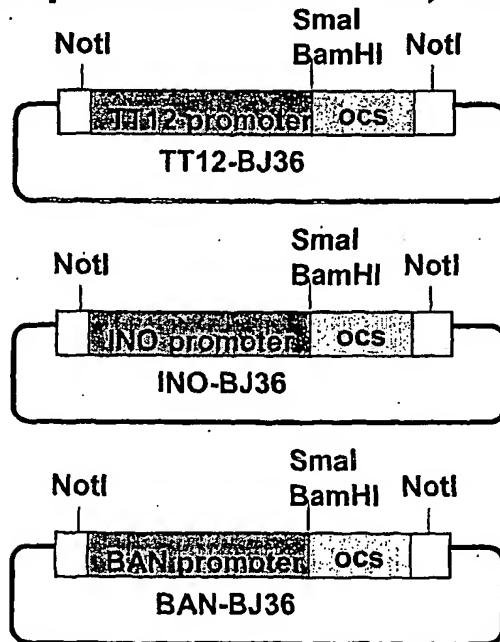
Figure 20

Cloning strategy, Examples 12, 13

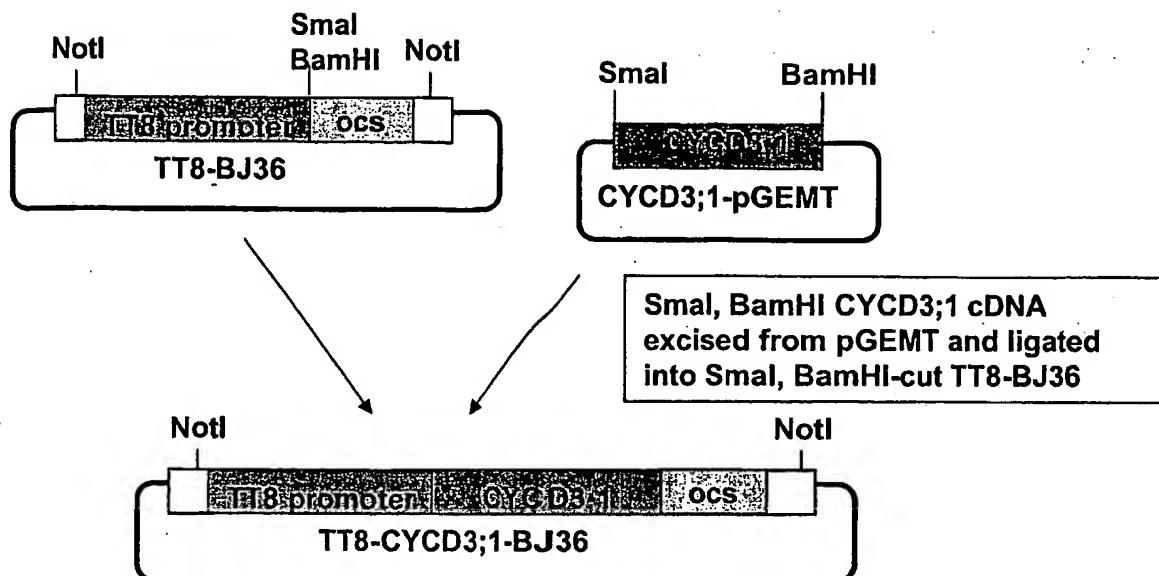
Examples 12a, 13a



Repeat process with TT12, INO, BAN promoters



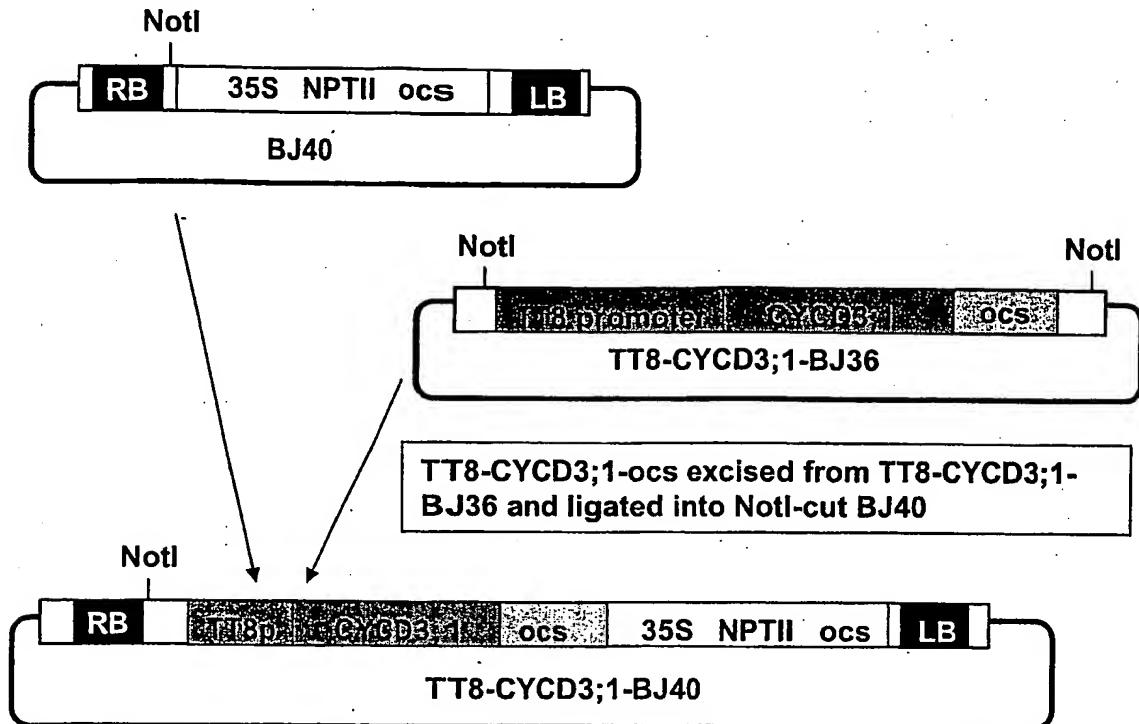
Examples 12b, 13b



Repeat process with IPT1, ANT, CYCB1;1 cDNAs and TT12, INO, BAN promoters

TT8-IPT1-BJ40	INO-CYCD3;1-BJ40
TT8-ANT-BJ40	INO-IPT1-BJ40
TT8-CYCB1;1-BJ40	INO-ANT-BJ40
TT12-CYCD3;1-BJ40	INO-CYCB1;1-BJ40
TT12-IPT1-BJ40	BAN-CYCD3;1-BJ40
TT12-ANT-BJ40	BAN-IPT1-BJ40
TT12-CYCB1;1-BJ40	BAN-ANT-BJ40
	BAN-CYCB1;1-BJ40

Example 12c, 13c



Repeat process with all BJ36 constructs shown in Example 12b

TT8-IPT1-BJ40

INO-CYCD3;1-BJ40

TT8-ANT-BJ40

INO-IPT1-BJ40

TT8-CYCB1;1-BJ40

INO-ANT-BJ40

TT12-CYCD3;1-BJ40

INO-CYCB1;1-BJ40

TT12-IPT1-BJ40

BAN-CYCD3;1-BJ40

TT12-ANT-BJ40

BAN-IPT1-BJ40

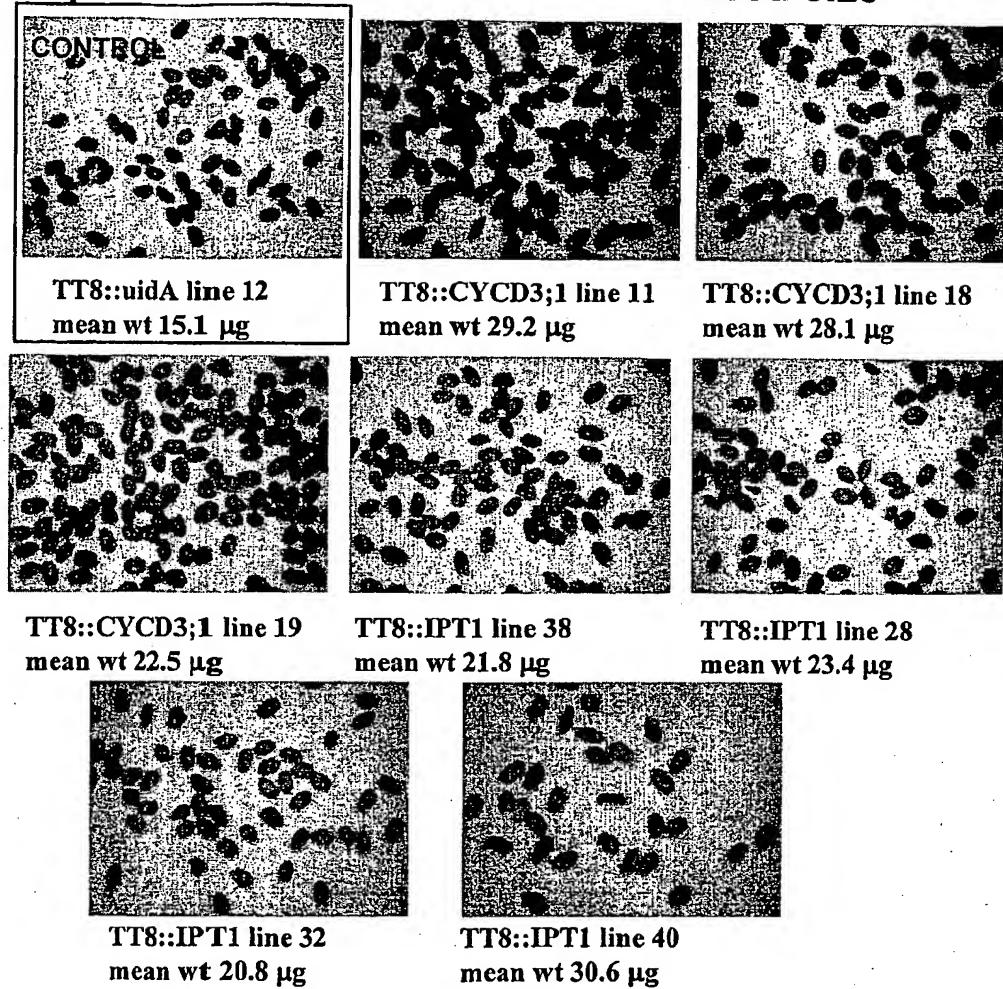
TT12-CYCB1;1-BJ40

BAN-ANT-BJ40

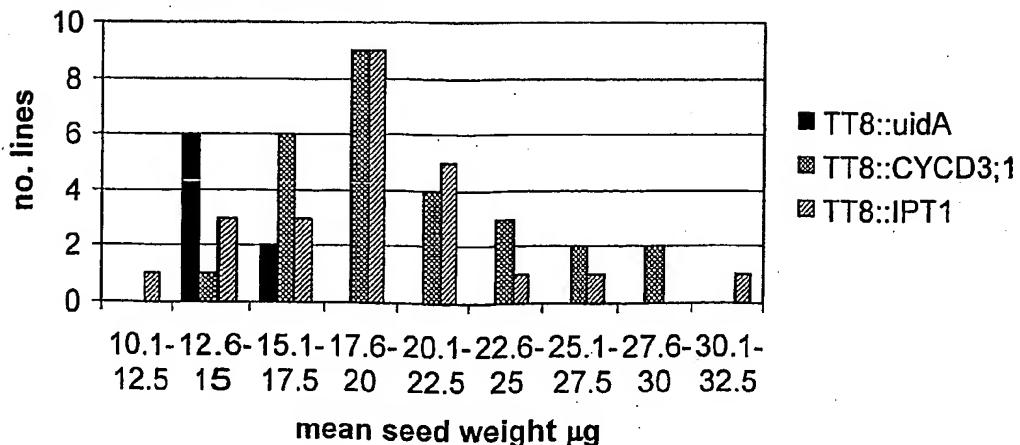
BAN-CYCB1;1-BJ40

Figure 21A

Expression cassettes to increase seed size



Distribution of seed weights in TT8::uidA (control), TT8::CYCD3;1, and TT8::IPT1 families



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Figure 21B

Expression cassettes to increase seed size

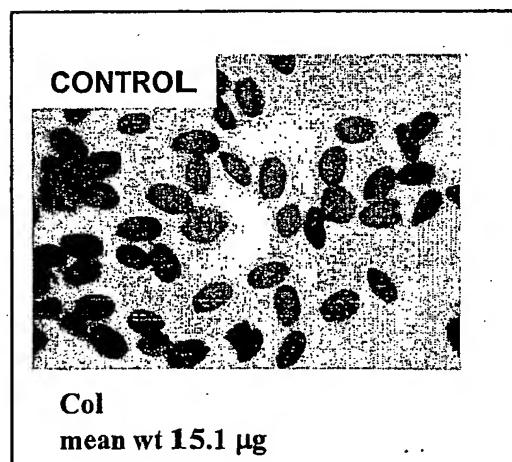
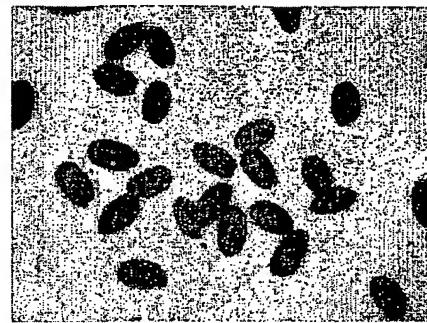
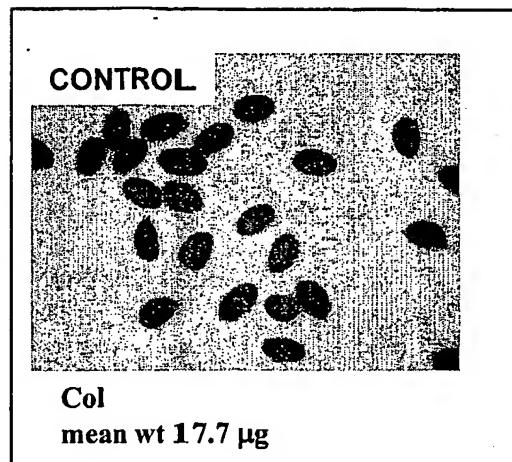
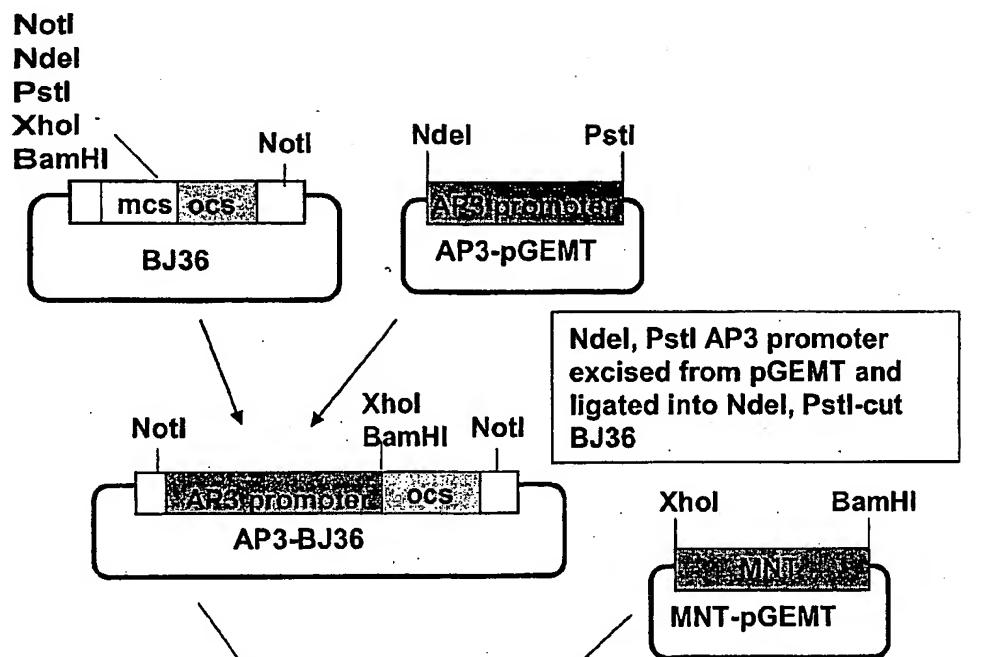


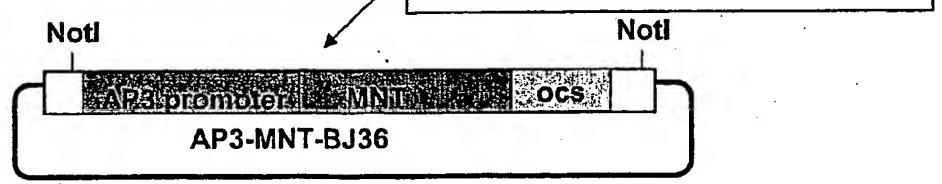
Figure 22

Cloning strategy, Example 14

Example 14a



Example 14b



Example 14c

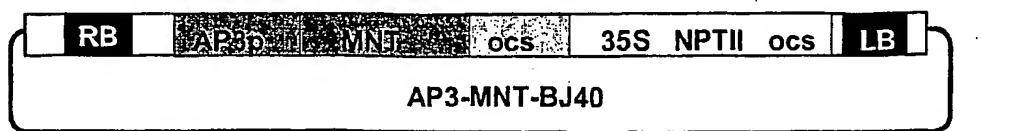
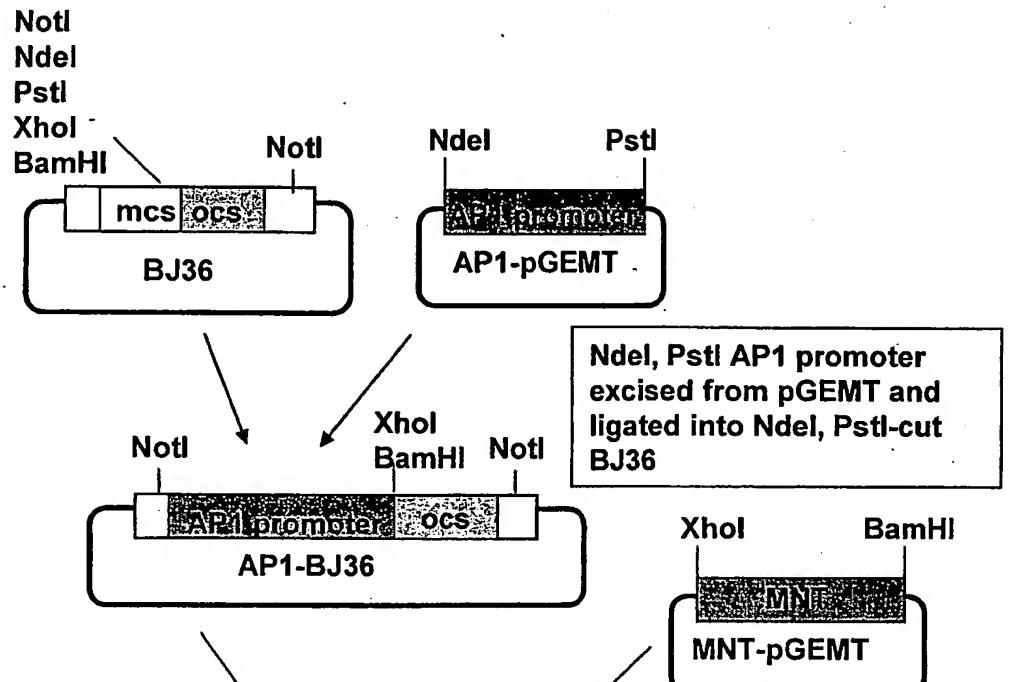


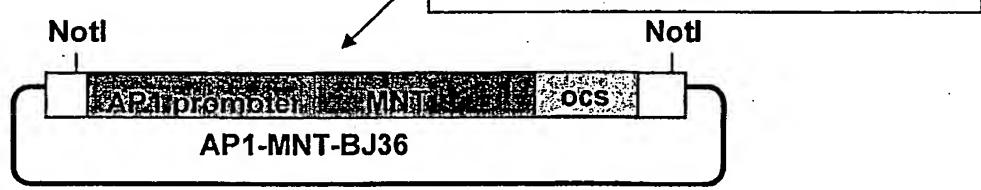
Figure 23

Cloning strategy, Example 15

Example 15a



Example 15b



Example 15c

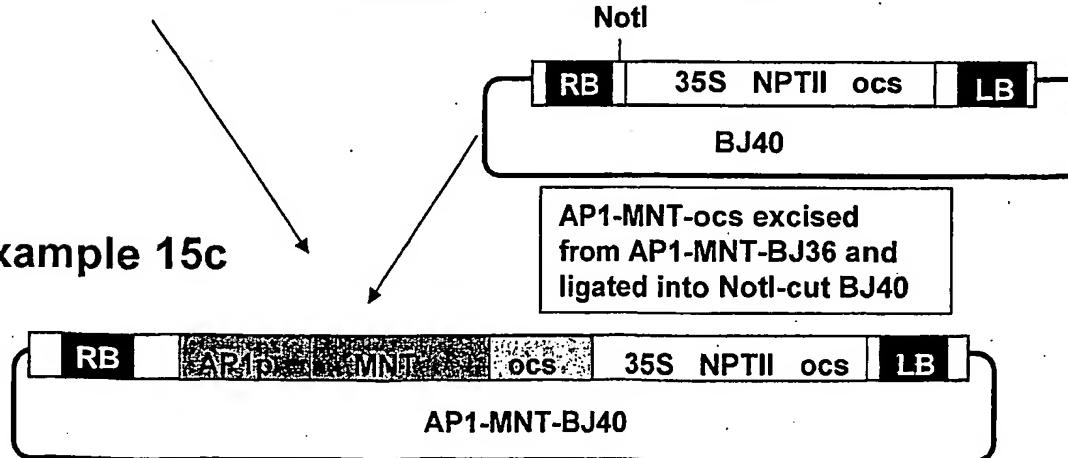
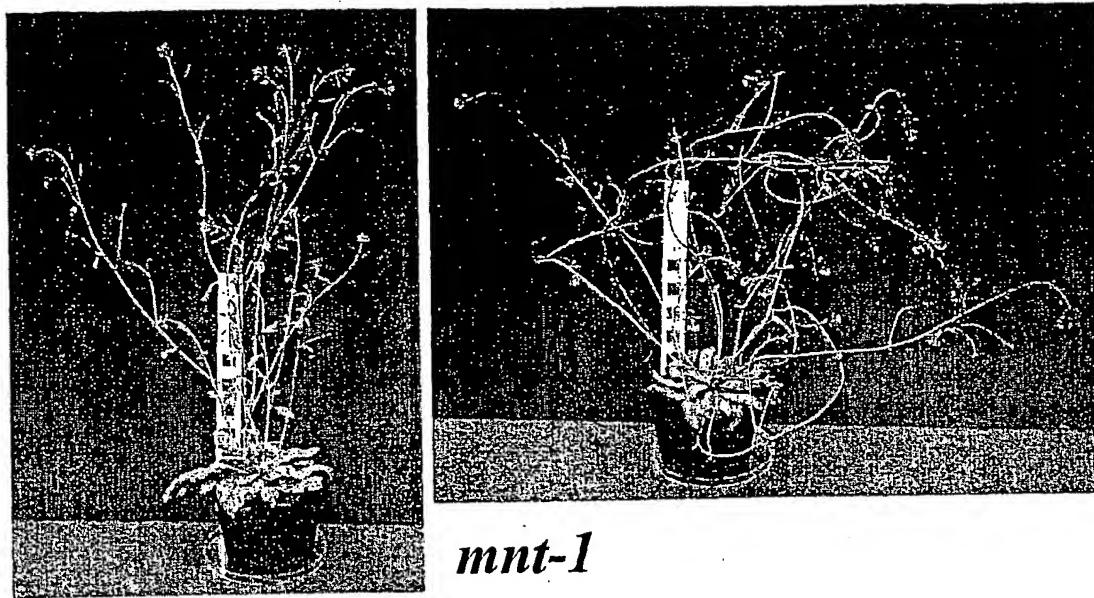


Figure 24

24A Wild-type vs *mnt-1* plants

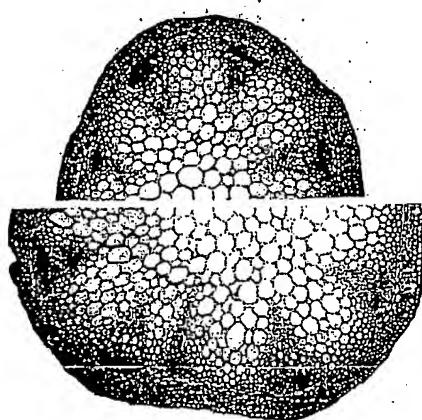


w.t.

mnt-1

24B Wild-type vs *mnt-1* stems, transverse sections

w.t.



mnt-1

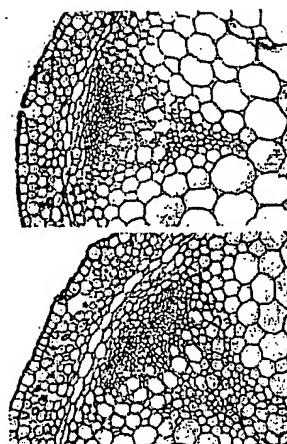
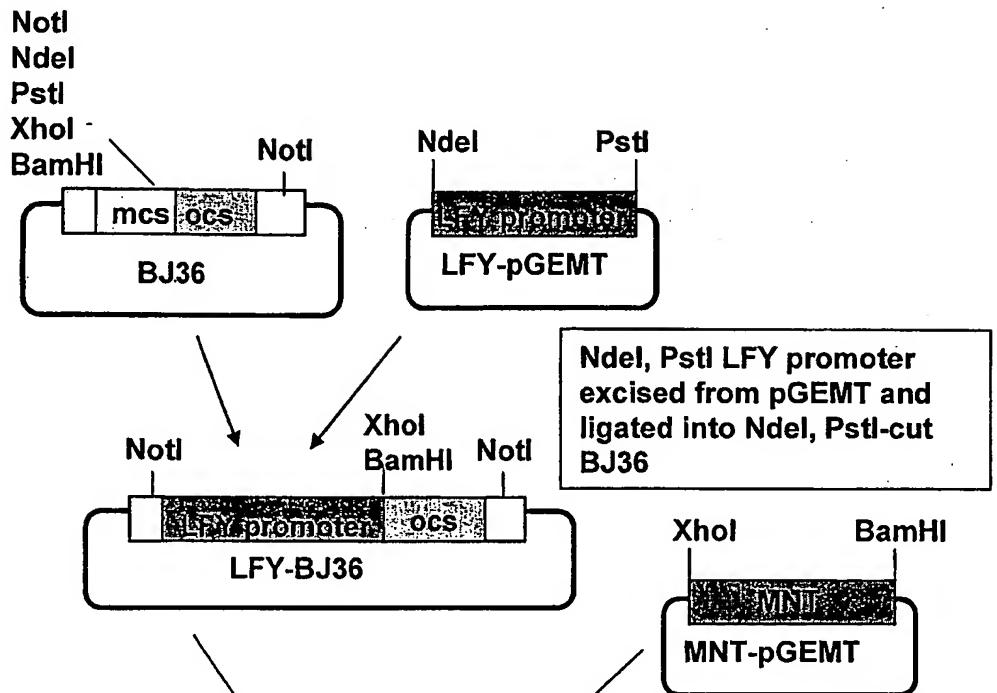


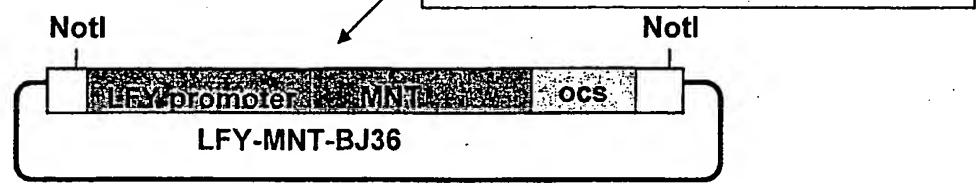
Figure 25

Cloning strategy, Example 18

Example 18a



Example 18b



Example 18c

